



BEING IN BUSINESS



CONFERENCE PROCEEDINGS

Being in Business *Être en affaires*

Atlantic Schools of Business 2010
40th Annual Conference
Halifax, Nova Scotia

Saint Mary's University, October 1-3

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40th Atlantic Schools of Business Conference

Table of Contents

THE ATLANTIC SCHOOLS OF BUSINESS EXECUTIVE	4
SPONSORSHIP.....	5
TRACK CHAIRS	8
REVIEWERS.....	9
PAPERS	11
ACCOUNTING – COMPTABILITE	11
PERFORMANCE DES SERVICES PUBLICS MUNICIPAUX DES VILLES CAMEROUNAISES: ENTRE OUTILS DU CONTRÔLE DE GESTION ET FACTEURS CONTINGENTS.....	11
PERTINENCE DES RAPPORTS DE DÉVELOPPEMENT DURABLE DES ENTREPRISES CANADIENNES INCLUSES DANS L'INDICE COMPOSÉ S&P/TSX.....	28
RAPPORTS DE DÉVELOPPEMENT DURABLE DE SOCIÉTÉS RESSOURCES QU'EN EST-IL?.....	40
ANALYSE DU CONTENU SOCIAL, ENVIRONNEMENTAL ET ÉCONOMIQUE DES DE DÉVELOPPEMENT DURABLE DE SOCIÉTÉS CANADIENNES.....	54
DIFFERENTIAL MARKET PRICING OF COMPONENTS OF ACCOUNTING RATE OF RETURN ON COMMON SHAREHOLDERS' EQUITY.....	69
THE BALANCED SCORECARD AS A STAKEHOLDER REPORT FOR PUBLIC SECTOR AGENCIES.....	83
PERTINENCE DE LA DIVULGATION D'INFORMATION SUR LA JUSTE VALEUR DES INSTRUMENTS FINANCIERS SELON LE CHAPITRE 3860 DE L'ICCA.....	99
BUSINESS HISTORY - HISTOIRE DES AFFAIRES	113
<i>THE GENDERED SUBSTRUCTURE OF THE ATLANTIC SCHOOLS OF BUSINESS</i>	<i>113</i>
BUSINESS LAW - LOI D'AFFAIRES	124
ABORIGINAL FINANCE AND REGULATION – WHAT ARE THE REGULATORY IMPEDIMENTS TO ESTABLISHING AN ATLANTIC CANADIAN ABORIGINAL FINANCIAL INSTITUTION?	124
ENTREPRENEURSHIP COMES WITH LEGAL RISKS	139
CASE TRACK - ETUDES DE CAS	157
<i>United Way's Tobacco Dilemma.....</i>	<i>157</i>
<i>Bulk Barn in Moncton</i>	<i>157</i>
<i>Memorial's Mini-Baja: A Case Study on Operational Strategy and Management of a New Enterprise in Small-Vehicle Design.....</i>	<i>158</i>
<i>Bait and Switch Marketing? Jason Simmons Buys a Chrysler.....</i>	<i>158</i>
<i>The British Petroleum Oil Spill: A Brief Case Study on Operations Management and Public Relations.....</i>	<i>158</i>
<i>Crossing the Thin Blue Line: The City of Moncton's Struggle with Policing Services.....</i>	<i>158</i>
<i>Evaluating Opportunities for Growth: Connetik Interactive and the Kitchener Decision.....</i>	<i>159</i>
ENTREPRENEURSHIP - ENTREPRENEURIAT.....	161
SPIN-OFFS IN THE METAL-MECHANIC SECTOR IN MEXICO: THE CASE OF THE MACHINE TOOLS.....	161
FINANCE – FINANCE	176
TRANSACTIONS BOURSIÈRES DES ADMINISTRATEURS DES GRANDES BANQUES CANADIENNES PENDANT LA DERNIÈRE CRISE FINANCIÈRE	176
UNDERSTANDING REGULATORY RISK TO BROADEN ABORIGINAL FINANCIAL AND ECONOMIC DEVELOPMENT IN ATLANTIC CANADA	193
COMPARING THE PERFORMANCE OF A MANAGED PORTFOLIO TO THE PERFORMANCE OF A BENCHMARK PORTFOLIO.....	210
DO INVESTORS VALUE PAYOUT INCREASES? EVIDENCE FROM THE CANADIAN INCOME TRUST SECTOR	223
TIME-VARYING EQUITY INDEX AND BOND MARKET PREMIA IN CHINA.....	240
GENDER & DIVERSITY - GENRE & DIVERSITÉ.....	254
WRITTEN NARRATIVES OF FOUR WOMEN MANAGERS IN MEXICO: GENDERED MANAGERIAL IDENTITIES	254
HUMAN RESOURCES & INDUSTRIAL RELATIONS - RESSOURCES HUMAINES & RELATIONS INDUSTRIELLES	272
EMAIL AND PERFORMANCE FEEDBACK: AN EXPLORATORY STUDY OF E-FEEDBACK	272
EXPLORING THE LABOUR SHORTAGE IN THE HALIFAX ACCOMMODATIONS INDUSTRY: INDUSTRY PERCEPTIONS OF CAUSE AND EFFECT.....	291
CONTRAT PSYCHOLOGIQUE ET ENGAGEMENT ORGANISATIONNEL: OBSERVATIONS EMPIRIQUES SUR L'EXPERIENCE DE LA RECIPROCITE DANS LE SECTEUR TERTIAIRE	305
Effects of Rater Priming and Incentives on Rating Accuracy	325
LEARNING AND PERFORMANCE IN THE SUBPRIME MORTGAGE CRISIS.....	337
The Impact of Managers' Work Hours on Employees' Use of Parental Leave.....	352
INFORMATION SYSTEMS - SYSTÈMES D'INFORMATION	369
Assessing KM Capabilities in two African healthcare organizations: case study.....	369
Using a moderator-type research model to identify the determining factors in satisfaction of using HIGH SPEED INTERNET in household	404
USING UTAUT to identify the INFLUENCING factors oN the use OF ERP SYSTEMS IN MEDIUM- TO LARGE-SIZED CANADIAN ENTERPRISES	429
CLASSIFYING ORGANIZATIONS BY KNOWLEDGE INTENSITY – A NECESSARY NEXT STEP IN KNOWLEDGE MANAGEMENT RESEARCH...457	457
MANAGEMENT EDUCATION - FORMATION EN GESTION.....	475
EVIDENCE BASED MILLENNIALS.....	475
Exploring the impact of literacy on business education and job-readiness: An examination of the reading comprehension skills of first year university students	487

<i>REFLECTIVE LEARNING: EDUCATING MANAGERS FOR A SUSTAINABLE WORLD</i>	499
MANAGEMENT SCIENCE & POM - RECHERCHE OPERATIONNELLE & GESTION DES OPERATIONS ET PRODUCTION	517
<i>PRICE, REBATE AND ORDER QUANTITY DECISIONS IN A NEWSVENDOR FRAMEWORK WITH REBATEDEPENDENT RECAPTURE OF LOST SALES</i>	517
<i>A TWO-STAGE SUPPLY CHAIN WITH INSPECTION ERRORS AND LEARNING IN PRODUCTION1</i>	525
<i>USING SYNTHETIC DESIGNS, A NEW FORM OF TRUE EXPERIMENTAL DESIGN: CAN THE LENGTH OF UNIVERSITY EXAMS BE SHORTENED WITHOUT LOSING INTEGRITY OF THE TEST?</i>	541
ORGANIZATIONAL BEHAVIOUR - COMPORTEMENT ORGANISATIONNEL	563
<i>TOTAL PARTICIPATION IN WORKER CO-OPERATIVES: THEORY, MEASURES AND IMPACTS</i>	563
ORGANIZATIONAL THEORY - THEORIE DES ORGANISATIONS	578
<i>BATTLE OF NARRATIVES IN A CHANGING FMCG DISTRIBUTION CHANNEL</i>	578
<i>ONCE UPON A TIME: DEVELOPING A DOCTORAL PROGRAM THROUGH STORIES OF PLAUSIBILITY</i>	594
<i>MEANING IN WORK: AN EXISTENTIAL CRITIQUE OF THE DISCOURSE OF CALLINGS</i>	607
<i>STOP SIGNS ON THE WIRELESS HIGHWAY OR REAR-ENDED BY ROGERS: WHAT CAN A SMALL COMMUNITY STAKEHOLDER DO?</i>	623
STRATEGY – STRATEGIE	638
<i>A MATRIX, A TABLE AND A BRIDGE: STRUCTURING ALTERNATIVE FORMULATION AND EVALUATION WITHIN THE STRATEGIC POSITIONING FRAMEWORK</i>	638
<i>BOARD GOVERNANCE ISSUES WITH NOT-FOR-PROFIT ORGANIZATIONS: KNOWLEDGE OF FINACIAL STATEMENTS AND ASSURANCE RECEIVED</i>	649
<i>For Whom the Firm Toils: Investigating the Ownership - Performance Linkage</i>	659

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PAPERS

Accounting – Comptabilité

ASB 2010
Halifax, Nouvelle-Ecosse
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PERFORMANCE DES SERVICES PUBLICS MUNICIPAUX DES VILLES CAMEROUNAISES: ENTRE OUTILS DU CONTRÔLE DE GESTION ET FACTEURS CONTINGENTS

Les collectivités locales font face aujourd'hui à des évolutions importantes quant à l'utilisation d'outils de contrôle de gestion nécessaires au suivi de la performance de leurs services. Ainsi, l'objectif poursuivi dans cet article est de présenter et analyser les informations obtenues lors de l'enquête quantitative. Afin d'obtenir une vision globale d'outils de gestion utilisés dans les services visités, une classification ascendante hiérarchique (CAH) sur le logiciel SPSS version 10.00 a été effectuée.

Mots clés : performance, outils de contrôle de gestion, services publics municipaux, classification ascendante hiérarchique.

Introduction

En contrôle de gestion, les systèmes de mesure de la performance dans les organisations ont longtemps été réduits à leur seule dimension financière (conception unidimensionnelle). Les mesures de performance étaient donc définies comme l'utilisation des indicateurs quantitatifs pour évaluer les activités, les efforts et réalisations (Burns et Waterhouse, 1975). La dernière décennie a été marquée par de nombreuses études développées dans les collectivités locales aussi bien en Europe qu'en Amérique du nord. Ammons et Rivenbark (2008) estiment que la mesure de la performance semble être la meilleure méthode pour atteindre une grande responsabilisation dans les gouvernements locaux. Bien que ces indicateurs soient moins faciles à mesurer (Politt, 1986), ils ont pour impact significatif sur la performance financière (Saïd A.A. et al., 2003).

Ainsi, comme le remarque OUCHI W. (1979), « Le problème de l'organisation est d'obtenir la coopération entre un grand nombre d'individus ou d'unités qui partagent seulement et partiellement des objectifs convergents ». Cette remarque est particulièrement marquée par des frontières internes. En particulier, l'opposition qui sépare les administrations et les techniciens est ancienne et profonde. Elle se manifeste, soit par une ignorance polie, soit par des dissensions entre des hommes ayant des formations et des logiques différentes, voire contradictoires (ROUSSARIE O., 1995). Auparavant, le pouvoir se trouvait essentiellement entre les mains des techniciens, dont dépendaient les grandes réalisations si chères aux élus. Aujourd'hui, le secrétaire général, le directeur financier et le contrôleur de gestion semblent occuper une place de plus en plus importante. Ils ont la responsabilité de la maîtrise des charges, la réduction des coûts afin de dégager un maximum d'autofinancement pour réaliser ces gros investissements, toujours aussi chers aux élus. L'écart grandissant qui sépare les techniciens des administratifs, produit un choc de cultures. Les principes de gestion, l'adoption d'une approche mercatique, d'un système de contrôle de gestion incitent les élus à être plus à l'écoute des spécialistes, des gestionnaires. Les élus font ensuite exécuter leurs choix, établis à partir des avis du secrétaire général, qui devient le véritable directeur général de l'organisation municipale, du directeur des services financiers, qui déterminent la possibilité de financer le projet, et du directeur des services techniques, qui n'est plus le seul à apporter des informations utiles à la prise de décision. Cet article a pour objet de fournir une description de l'état des lieux des pratiques des municipalités existantes afin de contribuer à la connaissance des outils de contrôle de gestion nécessaire au suivi des performances dans ces entités locales. L'étude est menée à partir des données collectées par questionnaire auprès des 60 services visités constituant l'échantillon. Les apports théoriques et la méthodologie adoptée sont d'abord présentés ; les résultats empiriques sont ensuite analysés et discutés.

1. Apports théoriques

Une des caractéristiques des organisations publiques et en particulier des collectivités locales est leur complexité. Celle-ci est, entre autres, le fruit de l'hétérogénéité des activités. Une commune possède un grand nombre de services nécessaire au bon fonctionnement de la collectivité mais répondant à des besoins extrêmement variés n'ayant aucun lien apparent entre eux. Un des rôles du contrôle de gestion et tout spécialement la comptabilité analytique va, comme le signale ROUSSARIE (1995), être de tenter à mieux coordonner l'ensemble de ces activités diverses. Mais cette hétérogénéité conduit également à s'interroger sur la pertinence d'un système unique et unificateur.

1.1. Le degré d'utilisation des tableaux de bord dans les mairies

Le contrôle de gestion est actuellement soumis à de nombreux questionnements. Son application dans un univers complexe, tel celui des collectivités locales permet de faire progresser la réflexion de par son angle d'approche original et novateur. Il faut en effet attendre la décennie 1990 pour voir réellement se développer le contrôle de gestion des villes, timidement apparu au cours des années 1977/1980. Le contrôle de gestion présente de fait une double facette : une dimension technico-économique de nature comptable et financière complétée d'une dimension « managériale, psychologique » liée à la notion de contrôle et d'influence des comportements (NARO G., 1995). La pratique du contrôle de gestion met effectivement en évidence l'importance de l'animation des hommes. La fonction requiert l'implication de tous et un certain degré de motivation. Elle est également censée développer l'autonomie des responsables (GERVAIS M.,

1997 ; CHATELAIN S., 1998). Ces éléments sont particulièrement présents au sein d'un des outils phares du contrôle de gestion à savoir le tableau de bord. Dispositif souple et diversifié, le tableau de bord peut se définir comme une présentation, à partir d'indicateurs sélectionnés d'un suivi de facteurs clefs de gestion de l'entité concernée (MENDOZA C., 1998 ; BOUQUIN H., 1997). Il remplit plusieurs missions dont celle de faciliter le contrôle des activités déléguées. La réactivité des responsables dans leur zone d'action est supposée accrue. Dans ce cadre, chaque responsable doit dialoguer avec ses collaborateurs autour du tableau de bord. L'outil requiert de l'encadrement la réalisation d'une analyse dynamique des résultats. Cette dimension managériale croisée au thème de la modernisation du secteur public nous conduit à poser la question suivante : sous quelles conditions le contrôle de gestion en milieu communal, représenté par l'utilisation de tableaux de bord de service est-il un instrument à la fois d'évaluation de la performance et de responsabilisation de l'encadrement ? S'agissant de la responsabilisation des agents communaux, DEMEESTERE R. et ali. (1997), font référence à la notion de responsabilité transposée au monde de l'entreprise. Pour ces auteurs, cette notion présente deux facettes distinctes, correspondant à deux modes gestionnaires opposés : la décentralisation et son contraire. Dans le premier cas, la responsabilité recouvre une définition large. Elle renvoie l'idée de maîtrise d'un domaine délimité. Les marges de manœuvre sont réelles et la possibilité d'isoler la responsabilité du manager existe. En revanche, dans une dynamique de centralisation fortement présente en milieu public, la notion de responsabilité a un champ d'action plus hiérarchique précise. L'autorité centrale impose une obligation de résultat (fixation d'objectifs et évaluation de performances). Pour l'équipe dirigeante, le tableau de bord est utilisé comme « moyen de légitimation » (NIZET J., 1992) des politiques imposées. En effet, son implantation repose sur un discours de modernisation, de rationalisation au nom duquel les activités doivent être conduites. L'introduction de cet outil souligne les objectifs généraux de la mairie et recherche l'adhésion de ses membres. Plusieurs agents parlent spontanément de changement de culture de gestion « affiché dès le départ ». « C'est une volonté politique en terme de management ». L'utilisation du tableau de bord en vue de construire un outil sur-mesure en adéquation aux objectifs de performances devient une pratique courante dans le secteur public. Ainsi, le tableau de bord est par nature un outil personnalisé dans son contenu puisque étant construit sur les variables clefs d'action, particulières à chaque manager en management suppose déjà de parvenir à préciser les objectifs de manière suffisante. Mais la pluralité de missions de service public, notamment dans une mairie, limite l'exercice. Les objectifs ont alors tendance à rester dans le flou (LE DUFF R. et PAPIILLON JC., 1988).

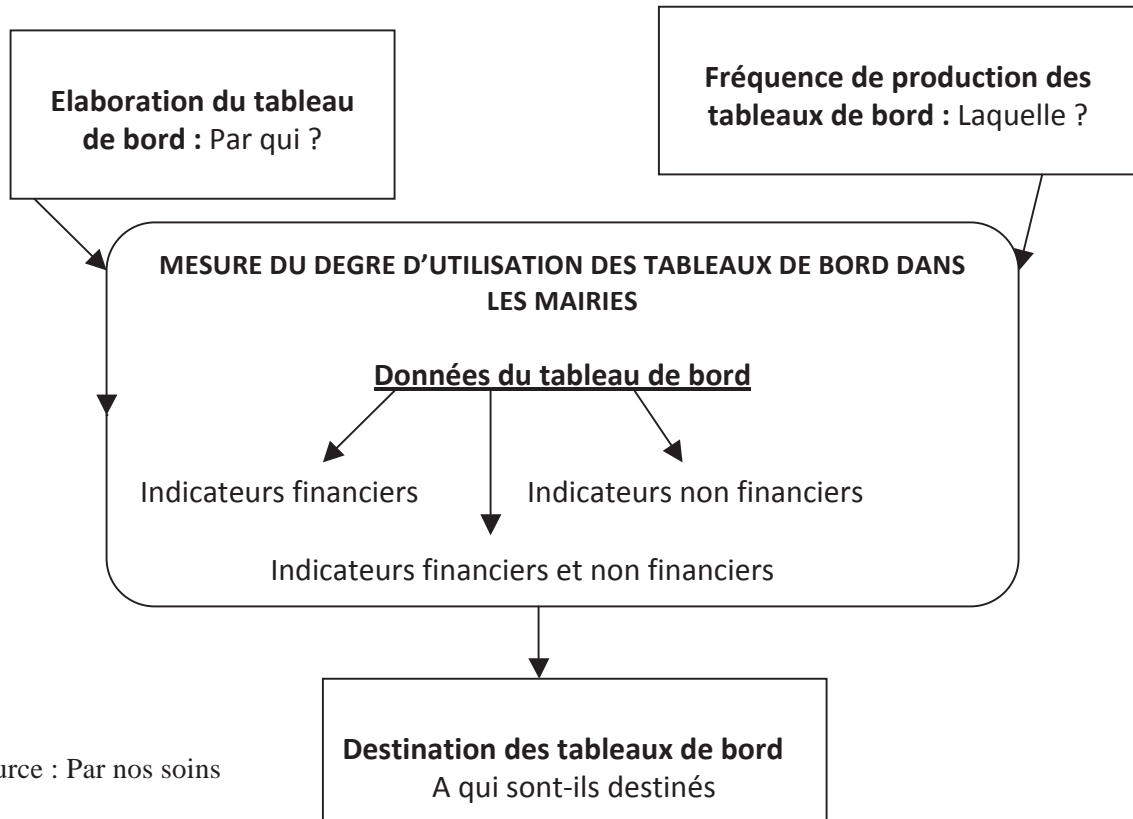
1.2. Responsabilisation et mesure de la performance à travers l'usage des tableaux de bord dans les mairies.

En ce qui concerne l'évaluation de la performance à travers l'usage des tableaux de bord dans les mairies, le contrôle de gestion s'inscrit explicitement dans cette démarche responsabilisante. Dans la littérature, le croisement entre contrôle de gestion et responsabilisation, fait référence d'une part, à l'appropriation et à la maîtrise de la performance et, d'autre part, au système d'animation permettant de fixer et d'atteindre les objectifs (MEYSSONNIER F., 1991). La mesure de la performance peut se réaliser à l'aide du contrôle d'animation stipulant la responsabilisation (KOPEL S., 2001). Selon cette optique, l'encadrement joue un rôle déterminant (BARTOLI A., 1997). Pour LANGEVIN M. et al. (1995), la responsabilisation constitue même une étape à part entière de l'établissement du contrôle de gestion (après celle de fixation des objectifs et avant celle de management opérationnel). Il s'agit de décliner des objectifs afin de permettre à l'ensemble des managers locaux de gérer la performance. La responsabilisation les concerne afin de rendre les décisions cohérentes aux objectifs stratégiques. Nous retrouvons là une des missions classiques du contrôle organisationnel (BOUQUIN H.,

1997). Pour ce faire, les responsables locaux doivent connaître les objectifs et être incités à les respecter.

Au final, la mesure du degré d'utilisation des tableaux de bord dans les mairies peut être résumée par le schéma suivant :

Schéma 1. Mesure du degré d'utilisation des tableaux de bord dans les mairies



Source : Par nos soins

2. Méthodologie de l'étude

« Le contexte des pays de l'Afrique subsaharienne influence considérablement les choix méthodologiques des recherches en gestion. De nombreux problèmes particuliers se posent à tout chercheur dans ce domaine et le contraignent à adopter des stratégies de recherche appropriées afin de pouvoir disposer de données primaires nécessaires à sa recherche. Parmi ces problèmes on peut citer les difficultés d'accès à l'information, les obstacles de l'environnement, la faible fiabilité des données statistiques, le manque de collaboration des populations cibles. Ensuite, on pourrait ajouter, les difficultés découlant de l'impératif d'une recherche confrontée au terrain »¹. Ainsi, pour mieux appréhender l'objet de l'étude, 148 questionnaires ont été administrés aux responsables de différents services publics municipaux. Sur les 148 questionnaires expédiés, 88 sont retournés, parmi lesquels 28 sont non exploitables et 60 sont exploitables. Les détails des taux de réponse relatifs aux questionnaires retournés, exploitables et non exploitables sont fournis dans le tableau ci-dessous.

¹ Nyengue E. P. (2006), p.163

Tableau 1. Taux de réponse global de l'enquête quantitative

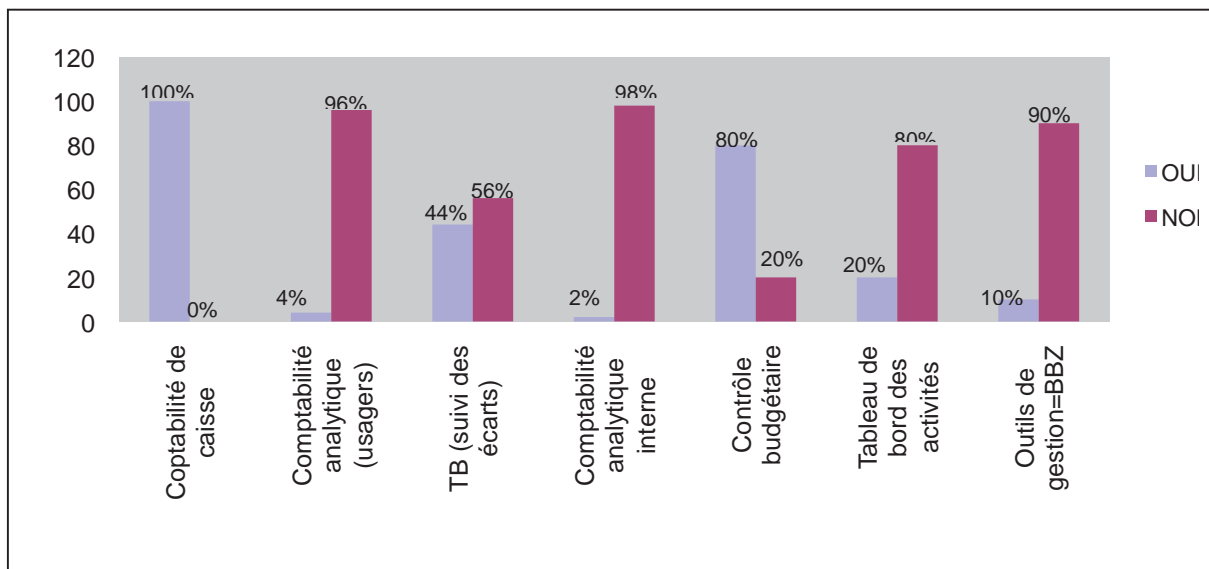
	Totaux	Pourcentage
Questionnaires envoyés	148	100 %
Questionnaires retournés	88	59,45%
Questionnaires non exploitables	28	18,91%
Questionnaires exploitables	60	40,54%

Enfin, une identification d'outils de gestion utilisés dans les municipalités visitées et nécessaires au suivi de la performance communale a été réalisée. Nous faisons ainsi appel à au CLUSTER (classification ascendante hiérarchique). Toutes les données ont été analysées avec le logiciel SPSS version 10.00.

3. Principaux résultats obtenus et discussion

Les statistiques descriptives réalisées à partir des données recueillies lors de l'enquête quantitative révèlent que les outils de contrôle de la performance des services municipaux des villes camerounaises sont peu significatifs et restent très sommaires dans l'ensemble des 60 services visités constituant notre échantillon. En dehors de la comptabilité d'engagement qui reste généralisée dans l'ensemble des municipalités au regard des résultats de la première phase d'observation, les résultats de l'enquête quantitative sont très peu significatifs par rapport aux autres outils de gestion utilisés dans ces mêmes municipalités. L'analyse de la performance municipale ou encore le contrôle des activités au sein des mairies camerounaises peut très souvent s'exercer de façon directe ou informelle sans véritablement nécessiter d'outils de gestions sophistiqués à l'usage que l'on peut tirer des informations recueillies dans le cadre de l'enquête de terrain. L'absence des tableaux de bord dans les communes rurales peut sembler logique. Par contre le fait que la majorité des mairies relevant des grandes villes de Douala et de Yaoundé ne procède pas à une saisie des informations de gestion sous forme de tableau de bord, peut sembler tout inquiétant quant à la notion même de la performance communale. Le graphique ci-dessous illustre l'existence des outils de gestion au sein des mairies camerounaises.

Graphique 1. Existence d'outils de gestion dans les 60 services municipaux

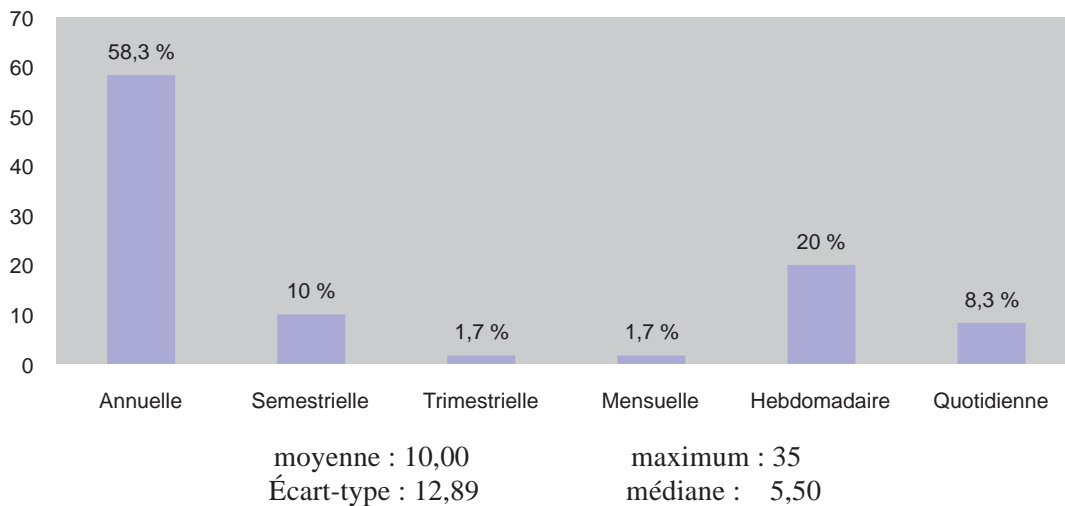


En définitive, nous avons observé comme le tableau le montre si bien que la comptabilité de caisse est très répandue dans tous les 60 services de l'échantillon. Dans la pratique, le BBZ est une méthode de mobilisation des services souple et adaptable. Il permet de faire avancer l'ensemble des services en même temps ou travailler par groupes. Enfin en fonction de la situation financière de la ville, il est possible de mettre l'accent sur la maîtrise des coûts ou l'amélioration de la qualité des prestations. L'intérêt de la méthode réside dans la rigueur et dans la formalisation des différentes étapes qui permettent au secrétaire général de bien maîtriser l'action et dans le fait qu'elle prend appui sur les chefs de service. Le BBZ devient un langage commun de la mairie. Ainsi, les résultats de l'enquête montrent que 90% des mairies enquêtées n'ont pas recours au BBZ comme méthode d'élaboration des budgets communaux contre 10% qui l'utilisent pour élaborer leurs budgets.

3.1. Fréquence d'élaboration des tableaux de bord dans les services

Les résultats de l'enquête montrent que la fréquence d'élaboration des tableaux de bord dans les 60 services de l'échantillon la plus répandue est annuelle (58,3 %). Il y a une forte variation d'élaboration des tableaux de bord ; même si l'on observe que 3,4 % des services optent pour une élaboration trimestrielle et mensuelle des tableaux de bord (1,7 % trimestrielle et 1,7 % mensuelle). Le graphique ci-dessous fournit plus de détails quant à l'élaboration des tableaux de bord au sein des services municipaux dont la périodicité varie de « annuelle à quotidienne ».

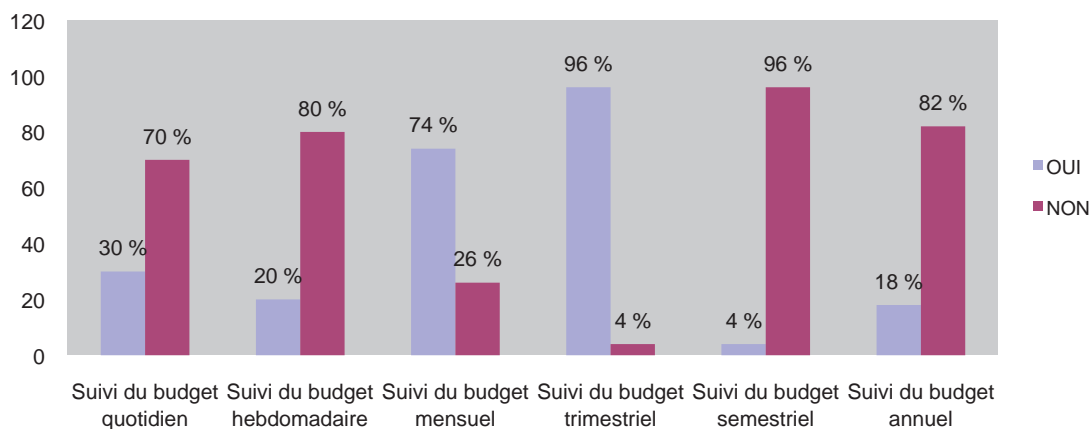
Graphique 2. Fréquence d'élaboration des tableaux de bord dans les 60 services municipaux.



3.2. Le suivi des budgets communaux des municipalités visitées

L'exécution du budget concentre l'essentiel de la comptabilité administrative de l'ordonnateur. C'est l'ensemble des actes posés et opérations conduites pendant la période d'exécution du budget communal qui constitue la comptabilité de l'ordonnateur. Elle permet à ce dernier de liquider et d'ordonnancer les dépenses engagées au cours de l'exercice et au receveur municipal de vérifier, prendre en compte, recouvrer ou régler les titres (perceptions ou paiement). Ainsi, les résultats de l'enquête montrent que le suivi des budgets communaux des villes camerounaises se fait beaucoup plus trimestriellement (96 %) et mensuellement (74 %). De l'autre côté, on observe que 18 % des mairies suivent leurs budgets annuellement contre 4 % qui le suivent semestriellement. En ce qui concerne le suivi quotidien, 30 % des mairies optent pour ce procédé contre 20 % pour un suivi hebdomadaire. Le tableau ci-dessous illustre bien les détails des suivis budgétaires dans l'ensemble des mairies de l'échantillon.

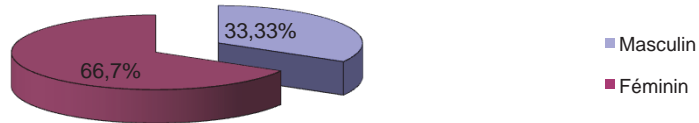
Graphique 3. Le suivi budgétaire des mairies de l'échantillon



3.3. Caractéristiques contingentes des 60 chefs de services des mairies visitées.

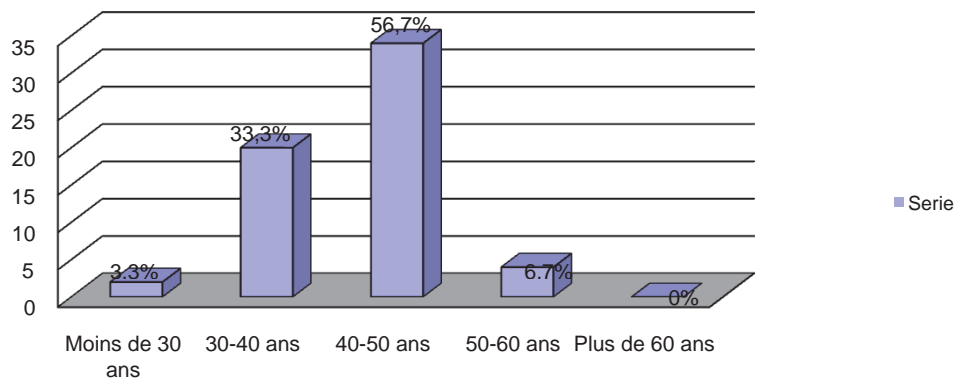
Nous présentons les caractéristiques de contingence d'ordre comportemental du chef de service liées au sexe, à l'âge, au niveau de formation et à l'ancienneté.

Graphique 4. Distribution des chefs de service selon leur sexe



Comme le montre le graphique ci-dessus, parmi les 60 responsables des services publics communaux visités, 20 sont de sexe masculin (33,33%) et 40 sont de sexe féminin (66,7%). Contrairement à la répartition des maires enquêtés de l'échantillon selon leur sexe où l'on a noté 4% des femmes, celle des 60 services publics municipaux visités est représentée par 40 femmes ; ce qui est véritablement significatif. Ceci peut s'expliquer tout simplement par le fait que le système politique Cameroun demeurant phallocratique, les femmes sont toujours de moins en moins à la tête des mairies. Tel n'est pas le cas des différents responsables de services enquêtés car, ces derniers ne sont pas des élus du peuple et ne sauront être sanctionnés par la voix du vote. Seuls la compétence, le niveau et le type de formation peuvent les conduire à des niveaux de responsabilité aussi importants.

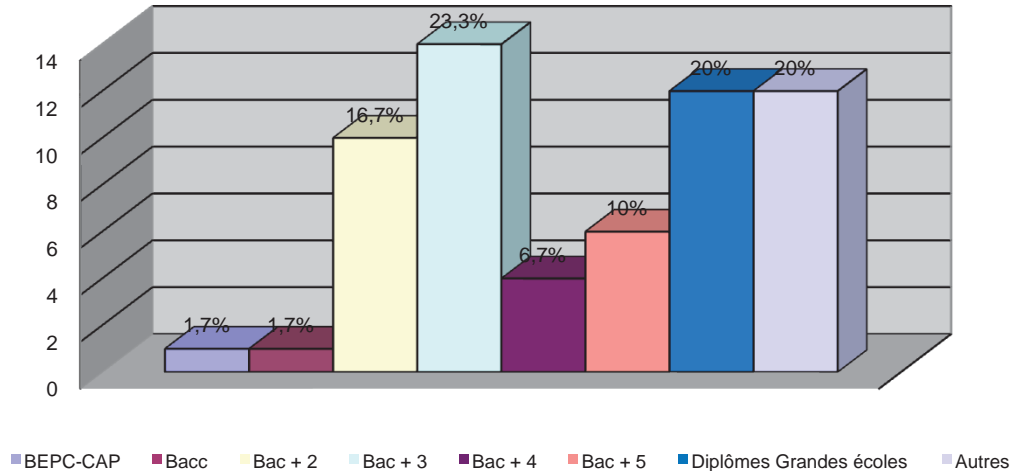
Graphique 5. Distribution des chefs de services selon leur âge



Les résultats de la première enquête nous montraient déjà que les chefs de services les plus jeunes parmi les 60 enquêtés avaient moins de 30 ans. Ceci vient ainsi confirmer les résultats de la

deuxième enquête car, 3,3% des chefs de services ont effectivement moins de 30 ans. La plupart des chefs de services ont entre 40 et 50 ans (56,7%). En revanche, aucun chef de service parmi les services ayant accepté de nous accueillir n'atteint l'âge de 60 ans. Ceci peut s'expliquer par le fait que les agents communaux prennent généralement leur retraite au Cameroun entre 50 et 55 ans. D'où un pourcentage de 6,7% (voir Graphique 2) représentant des responsables de services ayant entre 50 et 60 ans donc prêts à la retraite.

Graphique 6. Distribution des chefs de service selon leur niveau de formation

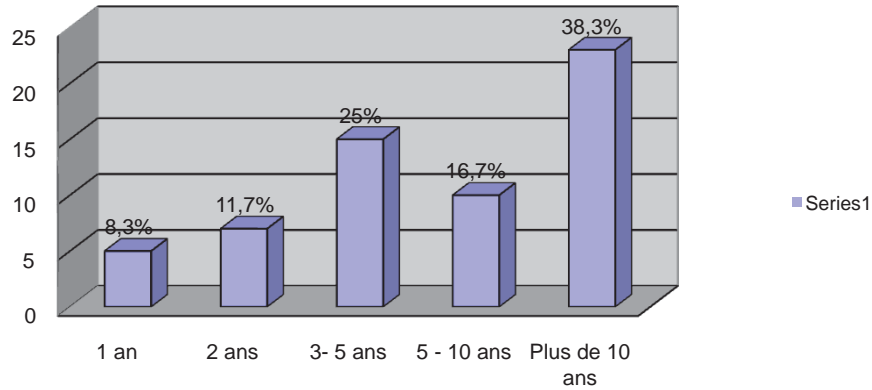


Le graphique ci-dessus nous offre une véritable distribution des chefs de services selon leur niveau de formation parmi les mairies visitées. Ainsi, 23,3% des responsables des services visités ont un niveau de formation Bac + 3. Ils sont dans la plupart des cas des responsables de services financiers ou de l'administration générale. Parmi les 14 responsables de services ayant un niveau de formation égal Bac + 3, on retrouve généralement des receveurs municipaux, des comptables matières tous formés au CEFAM (centre de formation de l'administration municipale) au Cameroun. Ces responsables formés par le CEFAM relèvent du ministère des finances et sont conjointement nommés par le ministère de l'administration territoriale et de la décentralisation (MINATD) et le ministère de l'économie et des finances (minefi). Toutefois, on retrouve quelques cadres financiers mutés par le minefi et occupent en général les postes de contrôleur financier dans les grandes communautés urbaines de Douala et de Yaoundé. 4% des contrôleurs financiers font partie de l'échantillon et sont formés par l'école nationale d'administration et de magistrature (ENAM) ; ils ne relèvent pas du MINATD. Les chefs de services de niveau Bac + 5 sont généralement des cadres techniques (ingénieurs de génie civil) formés non pas au CEFAM mais plutôt à l'école nationale des travaux publics de l'Etat (ENTPE). Mais on retrouve aussi des cadres de haut niveau tels que les ingénieurs architectes formés pour la plupart en France ou encore au Canada. On les retrouve surtout dans les gros services des communautés urbaines de Douala et de Yaoundé. Ils représentent environ 12% de l'échantillon. Ceux des chefs de services formés au second cycle du CEFAM (1,7% de l'échantillon) occupent plutôt des fonctions relevant de l'administration générale dans les communes telles que l'état civil, la rédaction administrative, la réglementation des marchés publics etc. Ils sont pour la plupart titulaires du Brevet d'études du premier cycle (BEPC) ou du certificat d'aptitude professionnelle (CAP).

Enfin, on retrouve quelques contractuels d'administration issus des autres écoles de formations telles que l'école supérieure des sciences économiques et commerciales (ESSEC) de

l'université de Douala de niveau Bac + 4 et Bac + 5 ou encore de l'Institut universitaire de technologie (IUT) de niveau Bac + 2 (titulaires de BTS ou encore d'un DUT)

Graphique 7. Distribution des chefs de service selon leur ancienneté



L'ancienneté assure un meilleur ajustement mutuel entre les agents qui travaillent ensemble depuis de longues années et ainsi se connaissent bien, ont pris l'habitude de s'observer, de se contrôler. Mais l'ancienneté peut aussi se révéler une entrave à l'introduction d'outils de gestion permettant d'évaluer objectivement la performance des services publics locaux, car celle-ci (l'évaluation) vient bousculer des pratiques bien ancrées dans la vie du service. Au regard du tableau ci-dessus, 38,3% des responsables de services ont plus de 10 ans d'ancienneté et se situe généralement dans la tranche d'âge de 40 à 50 ans ou encore de 50 à 60 ans soit respectivement 56,7% et 6,7%.

3.4. Essai de typologie d'outils de gestion utilisés pour le contrôle de la performance des services publics municipaux

L'analyse de classification à laquelle nous avons fait appel afin d'obtenir une vision globale des outils de contrôle de gestion utilisés pour le suivi des performances municipales est connue sous le nom de « cluster analysis ». C'est un terme générique utilisé pour désigner une variété de techniques d'analyses statistiques (SCHEIBLER et SCHNEIDER, 1985). Ces méthodes sont généralement utilisées pour grouper des objets, des personnes, des concepts ou des « stimuli » dans des groupes homogènes sur la base de leur similarité. Ces techniques de classification sont particulièrement utiles dans le cadre d'investigations exploratoires afin de dégager des tendances générales au sein des données et suggérer des pistes d'analyses futures (KOS et PSENICKA, 2000).

L'objectif poursuivi ici est de dégager la structure des représentations, cluster (classement) pour pouvoir organiser en classes des éléments du champ des représentations. Enfin, nous tentons de procéder à la comparaison afin d'ordonner des liens entre des éléments. La méthode « Ward » est souvent utilisée pour analyser des données ordinales. Elle maximise l'homogénéité des classes. Autrement, la méthode du « Between-group linkage » peut aussi être utilisée. Cette dernière paraît plus pertinente pour des données binaires. Dans tous les cas, il nous a valu la peine de comparer les différentes solutions, et de choisir sur la base de leur

« interprétabilité ». Ainsi, La classification hiérarchique a été basée sur les distances euclidiennes au carré en utilisant l'algorithme de Ward.

L'analyse procède par étapes. L'annexe (page 13) montre la construction des classes (les cases vides ont été mises en gris). La barre la plus élevée entre comptabilité fournissant les coûts des prestations délivrées aux usagers et la réalisation des tableaux de bord (RTB) indique la première étape de l'analyse, c'est-à-dire le premier découpage calcul des coûts pour maîtriser des charges (CMC) et la comptabilité analytique pour tarifier la prestation des services aux usagers (CAU) d'un côté, et toutes les autres variables de l'autre. Deuxième étape entre RTB et toutes les autres variables, etc. Au final nous avons retenu quatre groupes représentant les quatre types d'outils de contrôle de gestion utilisés pour le suivi de la performance des services publics municipaux. La typologie de ces outils porte essentiellement sur les principales variables sélectionnées ci-dessous énumérées :

- EGP : Existence gestion prévisionnelle	- CB : Contrôle budgétaire	-
CCTU : Calcul coûts pour tarification aux usagers	- TBA : Tableau de bord des activités	
- CCTSM : Calcul coûts pour tarification services	- BBZ : Budget Base Zéro,	
- CMC : Calcul de coûts pour maîtriser des charges	- PA : Prévision des activités	
- CAU : Comptabilité analytique aux usagers	- CC : Comptabilité de caisse	
- CAI : Comptabilité analytique interne.	- RTB : Réalisation des tableaux de bord,	
- TBE : Tableau de bord pour suivi des écarts,		

Nous allons maintenant observer les caractéristiques des individus selon les classes auxquelles ils appartiennent tout en donnant un nom évocateur à chacun des 4 groupes.

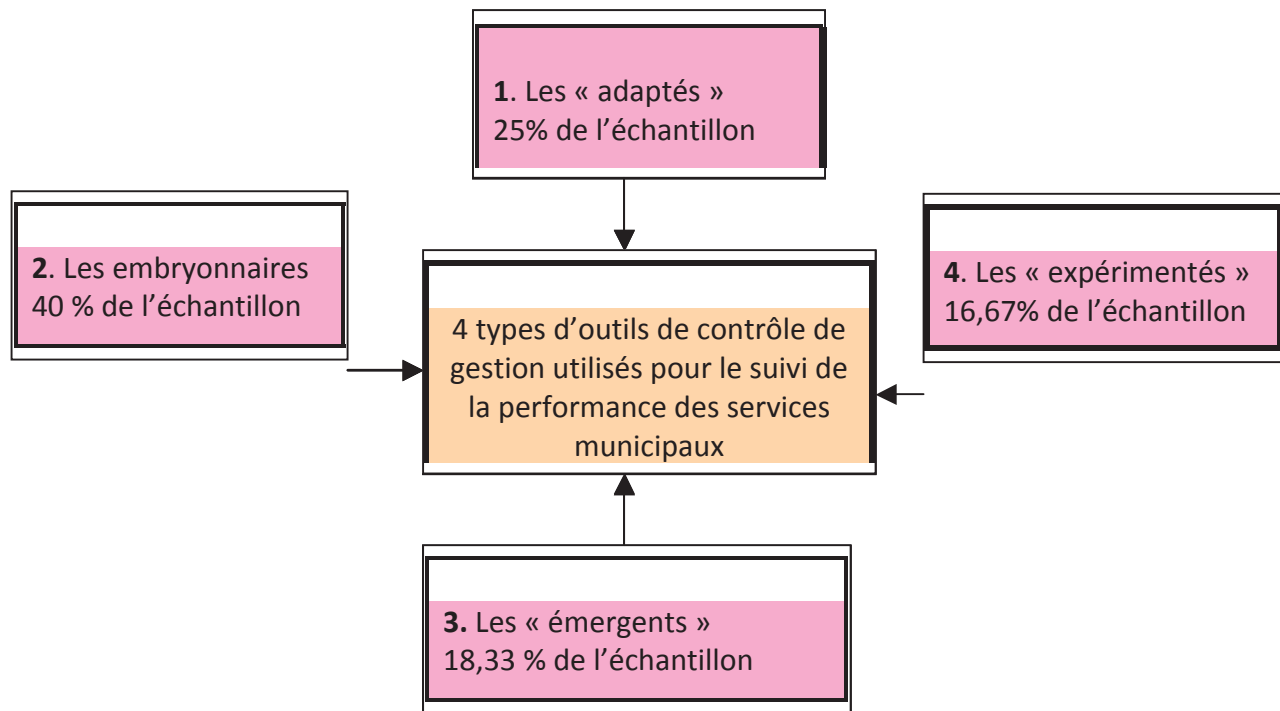
- **Les « adaptés »**, qui regroupent quinze services. Il s'agit là des services qui tentent d'après nos observations, de transposer des outils de contrôle de gestion en provenance des entreprises privées aux spécificités du secteur municipal. Ce groupe met un accent particulier sur les calculs des coûts nécessaires à la tarification des services municipaux. Ils représentent 25 % de l'échantillon (de l'ensemble des 60 services municipaux visités). Nous avons observé un niveau de formation relativement élevé pour chacun des responsables de ces différents services. C'est d'ailleurs à notre avis ce qui témoigne les efforts accomplis par ces derniers pour essayer d'adapter les outils de gestions utilisés dans les entreprises privées aux collectivités locales.

- **Les « embryonnaires »**. Ils regroupent les services qui, jusqu'à la date de l'enquête n'ont pas encore fait appel aux outils de gestion nécessaires au suivi de la performance de leurs activités. La gestion reste pour la plupart manuelle. Nous avons observé une volonté de la part de ces responsables de mettre en place un certain nombre d'outils de contrôle de gestion mais, ceci reste encore dans un stade précaire. Le niveau d'informatisation des activités est relativement faible pour ces mêmes services. Les embryonnaires sont les plus importants parmi les quatre groupes que nous avons recensé car, ils représentent 40 % de l'échantillon soit 24 services. En gros, la gestion des services de ce groupe reste rudimentaire dans l'ensemble.

- *Les « émergents »* regroupent les services qui convergent vers une gestion moderne des activités. Ils font appel à des outils de gestion traditionnels mais aussi essaient, tout comme le premier groupe à adapter les outils en provenance des entreprises privées au secteur municipal. Ils représentent 18,33 % de l'échantillon soit un total de onze (11) services. Nous avons observé que, l'émergence « ralentie » des outils de contrôle de gestion au sein de ces services est due à un faible taux d'informatisation des activités.

- *Les « expérimentés »* regroupent les services qui tendent vers un développement réel quant à l'usage des outils de contrôle de gestion pour le suivi des performances municipales. Ils utilisent une variété d'outils de gestion et ces services sont dans la plupart informatisés contrairement à certains services des groupes précédents. On les retrouve particulièrement dans les grandes communautés urbaines de Douala et de Yaoundé. Ils sont au nombre de 10 et représentent 16,67 % de l'échantillon. En dehors de la comptabilité de caisse qui est répandue dans tous les groupes, les expérimentés font usage des tableaux de bord pour le suivi des écarts entre les prévisions et les réalisations. La comptabilité analytique en usage de ces services sert non seulement à la maîtrise des coûts d'investissement mais aussi à la tarification des services aux usagers. C'est aussi dans ce groupe qu'on retrouve un fort niveau de formation des responsables allant de Bac + 3 à Bac + 5. Les résultats des procédures de construction des groupes nous permettent d'établir le graphique suivant :

Graphique 8. La typologie d'outils de contrôle de gestion utilisés dans les services publics municipaux pour le suivi de la performance



Au terme de cette typologie, les différents groupes ainsi résumés permettent de distinguer quatre grandes tendances face aux outils de contrôle de gestion utilisés pour le suivi de la performance des services publics municipaux. Tout d'abord, les « adaptés » sont des services parmi lesquels on observe une adaptation des outils de gestion en provenance des entreprises privées et, ayant à leur tête des responsables relativement bien formés. Tous les services visités dans ce groupe sont constitués pour la plupart des services financiers et techniques. Par ailleurs, les « embryonnaires » sont les plus nombreux et, l'usage des outils de gestion reste encore rudimentaire. Les « émergents » bien qu'utilisant des outils tels que les tableaux de bord des activités ou encore la gestion prévisionnelle restent encore peu développés. Enfin, les « expérimentés » sont des services qui ont mis en place de vrais outils de contrôle de gestion pour le suivi de la performance. Nous avons observé qu'ils sont minoritaires (16,67 %).

Conclusion

Au terme de ce travail, il est de notre point de vue nécessaire de rappeler les grandes tendances qui se dégagent pour une meilleure compréhension des résultats que nous présentons de notre recherche. L'étude quantitative des données recueillies nous a permis de décrire les outils de contrôle de gestion utilisés pour le suivi des objectifs. Toutefois, l'analyse des données révèle que les outils de contrôle de gestion à l'instar de la comptabilité analytique n'ont pas encore pénétré le secteur municipal camerounais. Nous avons par ailleurs observé un usage très rudimentaire des tableaux de bord au sein de ces municipalités. Une typologie des outils de contrôle de gestion utilisés pour le suivi de la performance des services publics municipaux a été effectuée à l'aide d'une classification ascendante hiérarchique. Cette dernière a révélé quatre types d'outils de contrôle de gestion utilisés dans les municipalités camerounaises.

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Annexe : Classification ascendante hiérarchique sur l'ensemble des variables caractéristiques d'outils de contrôle de gestion utilisés pour le suivi de la performance des services publics municipaux

Classification hiérarchique

Observation Calculer Récapituler (a)					
Observations					
Valide		Manquante		Total	
N	Pourcentage	N	Pourcentage	N	Pourcentage
60	100,0%	0	,0%	60	100,0%
a Carré de la distance euclidienne utilisé					

Observation Calculer Récapituler (a, b)					
Observations					
Valide		Manquantes		Total	
N	Pourcentage	N	Pourcentage	N	Pourcentage
60	100,0	0	,0	60	100,0
a Carré de la distance Euclidienne utilisé					
b Distance de Ward					

PERTINENCE DES RAPPORTS DE DÉVELOPPEMENT DURABLE DES ENTREPRISES CANADIENNES INCLUSES DANS L'INDICE COMPOSÉ S&P/TSX

Depuis quelques années, la publication de rapports de développement durable connaît un essor important dans la plupart des pays occidentaux. Cette publication, étant effectuée sur une base volontaire, amène à s'interroger sur sa prise en compte par le marché des capitaux. La présente étude tente de répondre à cette question en ayant recours à un échantillon d'entreprises canadiennes inscrites à la Bourse de Toronto. Les résultats tendent à démontrer que les investisseurs perçoivent positivement ce type de rapport.

Introduction

En cette ère de réchauffement de la planète sans précédent causé par l'activité humaine, de détérioration de la biodiversité et de mondialisation des marchés entraînant avec elle une amplification des problèmes sociétaux, les sociétés sont les premières pointées du doigt et elles doivent de plus en plus faire face à une demande croissante d'information de la part de leurs parties prenantes. Plusieurs d'entre elles ont pris les devants en publiant notamment sur une base volontaire des éléments d'information se rapportant à leurs initiatives et à leurs réalisations en matière de développement durable dans leurs rapports annuels, sur leur site Internet ou encore par l'intermédiaire de rapports de développement durable. D'après l'étude menée par KPMG (2008), près de 80 % des grandes entreprises composant le Global Fortune 250 publient un rapport distinct portant sur leurs responsabilités corporatives. Ce pourcentage est toutefois beaucoup moins important chez les sociétés de plus petite taille.

Bien que de nombreux chercheurs se sont intéressés au contenu de ces différents intermédiaires de communication d'éléments d'information portant sur le développement durable (Perez and Sanchez, 2009; Tsang et al. 2009; Perrini, 2005; Livesey and Kearins, 2002; Morhardt et al. 2002) et aux motivations des entreprises à communiquer ce type d'éléments d'information (Deegan, 2007; Larrinaga-Gonzalez, 2007), très peu d'études ont toutefois porté sur la prise en compte de ces éléments d'information par les parties prenantes des entreprises (Tilt, 2007). C'est dans cet ordre d'idée que la présente étude a pour objectif d'examiner la prise en compte par les investisseurs de la publication de rapports de développement durable par les entreprises canadiennes composant l'indice TSX250 de la Bourse de Toronto. Comme prévu, les résultats des analyses menées à partir d'un modèle de valorisation tendent à démontrer qu'une plus-value est accordée à la

publication de ce type de rapport. Les entreprises trouveraient donc un avantage certain à publier un rapport de développement durable.

Les contributions de cette étude sont nombreuses. Soulignons, pour débiter, que cette étude corrobore l'intérêt certain des entreprises à investir dans la publication d'un rapport de développement durable. Bien que les résultats des études s'étant intéressées aux motivations des entreprises se concentrent principalement sur des motivations relatives aux messages désirant être transmis et à l'avantage concurrentiel qui peut en découler, les résultats de la présente étude démontrent que les avantages financiers sont aussi certains. En se concentrant sur les rapports de développement durable, cette étude se distingue des études ayant porté uniquement sur l'information à caractère environnemental ou social. Les rapports présentent une perspective beaucoup plus large en traitant notamment les volets de performances environnementale, sociale et économique. Relevons également que l'échantillon est composé uniquement d'entreprises canadiennes pour lesquelles la publication d'un rapport de développement durable demeure une initiative strictement volontaire. Enfin, peu d'études ont été réalisées dans le contexte canadien; l'étude apporte ainsi des observations empiriques intéressantes, d'une part, non seulement pour les entreprises publiant ce type de rapport, mais aussi pour celles hésitantes à s'investir dans une telle initiative. D'autre part, ces observations empiriques peuvent aussi servir d'argument aux organismes de normalisation comptables ou encore aux instances gouvernementales désireuses de mettre en place un cadre de communication de l'information portant sur le développement durable.

La suite de ce document est divisée en quatre sections. Les écrits pertinents existants seront d'abord présentés, puis la méthodologie de recherche et l'échantillon utilisé aux fins de l'étude, ensuite les principaux résultats de l'étude et finalement, la conclusion discutant des principales limites de l'étude et des avenues de recherche pouvant être envisagées.

Travaux antérieurs

On définit le plus couramment le développement durable comme étant « un mode de développement qui répond aux besoins du présent sans compromettre la capacité des générations futures de répondre aux leurs » (Commission mondiale sur l'environnement et le développement, 1987). Au cours des dernières années, les rapports de développement durable ont pris peu à peu la place des rapports environnementaux publiés par les entreprises (Perez and Sanchez, 2009). À la différence des rapports environnementaux axés principalement sur la performance environnementale des entreprises, les rapports de développement durable s'étendent à la performance sociale et économique des entreprises donnant ainsi un aperçu plus étendu des aspects non financiers des pratiques de gestion de ces dernières. D'après le Global Reporting Initiative (GRI, 2006), la dimension sociale du développement durable concerne les impacts que l'organisation peut avoir sur les systèmes sociaux à l'intérieur desquels elle opère alors que la dimension économique du développement durable se rapporte aux impacts que l'organisation peut avoir sur les conditions économiques de ses parties prenantes et sur les systèmes économiques aux niveaux local, national et mondial.

Parallèlement à cet engagement de plus en plus marqué des entreprises dans la publication de ce type de rapport, plusieurs organismes nationaux et internationaux ont développé des référentiels pour guider les entreprises dans la divulgation d'information et la production de ce type de rapport (Adams and Narayanan, 2007). Parmi ces différents référentiels, on retrouve les lignes directrices du GRI (GRI, 2006), celles du World Business Council for Sustainable development (WBCSB, 2002) et celles de l'Institute of Social and Ethical Accountability (AA1000, 1999). D'après les résultats de l'étude menée par KPMG (2008), les lignes directrices du GRI seraient citées comme référence par plus de 77 pour cent des entreprises composant le G250 et produisant des rapports de développement durable. Notons toutefois que les entreprises ne semblent appliquer que partiellement les lignes directrices de ces référentiels. C'est ce que tendent, entre autres, à démontrer les observations de Morhardt, Baird and Freeman (2002). Sinclair and Walton (2003) observent, quant à eux, que peu d'entreprises des secteurs du bois et des pâtes et papiers divulguent le périmètre sur lequel porte leur rapport ce qui rend ces derniers difficiles à interpréter. Perez and Sanchez (2009) observent de plus que le contenu des rapports de développement durable diffère de manière importante d'une entreprise à l'autre et Ho and Taylor (2007) de même que KPMG (2008) d'un pays à l'autre. Soulignons que, dans un courant recherche étroitement relié, plusieurs études se sont intéressées aux divulgations à caractère environnemental et social des entreprises dans leurs rapports annuels (Gutherie and Parker, 1990; Gamble et al. 1995; 1996; Adams et al. 1998; Hackston and Milne, 1996; Graig and Diga, 1998; Holland and Foo, 2003) et aux liens entre la performance environnementale et les divulgations volontaires des entreprises à cet égard dans leur rapport annuel (Ingram and Frazier, 1980; Wiseman, 1982; Freedman and Wasley, 1990; Bewley and Li, 2000; Hugues et al. 2001). Les résultats de ces études ne démontrent pas de liens ou démontrent un lien négatif (Bewley and Li, 2000; Hugues et al. 2001). Clarkson et al. (2008), quant à eux, ont examiné le lien entre le contenu des rapports de développement durable et la performance environnementale des entreprises opérationnalisées à partir de deux mesures des *Toxics release inventory* (TRI) du *US Environmental Protection Agency's* (EPA). Leurs résultats démontrent une relation positive.

Plusieurs bénéfices ont été mis de l'avant pour expliquer l'intérêt des entreprises à publier des rapports de développement durable ou encore à effectuer du « sustainability reporting » par d'autres intermédiaires de communication. Burh (2007) relève le devoir moral et éthique pressenti par certaines entreprises, l'avantage concurrentiel qui peut en découler, les pressions des entreprises concurrentes et du secteur d'activité, la bonne performance de l'entreprise, la gestion de l'image des entreprises (O'Dwyer, 2002), les relations publiques et la reconnaissance des efforts des entreprises dans le domaine (Reverte, 2009), les pressions sociales, les bénéfices financiers et le désir des entreprises de participer à la définition de standards volontaires de divulgation ou encore de participer au processus de normalisation afin de s'assurer de l'alignement de l'agenda des organismes de règlementation ou de normalisation à ceux des entreprises et de leur secteur d'activités.

Du côté des utilisateurs, les études sont peu nombreuses. Danastas and Gadenne (2006) ont effectué une enquête auprès d'organismes non gouvernementaux (ONG) australiens à but sociaux et environnementaux. Leurs résultats tendent à indiquer que la

perception de ces dernières à l'égard des divulgations à caractère social est relativement homogène. De leur point de vue, certains éléments d'information sont pertinents, mais dans l'ensemble, les divulgations effectuées sont insuffisantes. Solomon and Solomon (2006) ont, pour leur part, interrogé des investisseurs institutionnels. Leurs résultats tendent à démontrer non seulement que les divulgations des entreprises dans les domaines sociaux, éthiques et environnementaux ne répondent pas aux besoins de ces derniers, mais aussi que ce manque d'utilité est à la source du développement de systèmes privés d'information pouvant répondre à leur besoin. Moneva and Cuellar (2009), Cormier and Magnan (2007) de même que Murray et al. (2006) ont examiné la prise en compte par les investisseurs de l'information à caractère environnemental divulguée dans les rapports annuels des entreprises. Les résultats de Moneva and Cuellar (2009) tendent à démontrer que les investisseurs prennent en compte les éléments d'information de nature financière, mais pas ceux de nature non financière. Ceux de Cormier and Magnan (2007) tendent à démontrer que pour les entreprises françaises les investisseurs voient plutôt d'un mauvais œil les divulgations à caractère environnemental alors que pour les entreprises allemandes et canadiennes leurs résultats sont non significatifs. Finalement, Murray et al. (2006) n'ont observé aucune relation significative entre le rendement des actions des entreprises et leurs divulgations d'éléments d'information à caractère social et environnemental. La présente étude a pour objectif de compléter ces travaux en examinant non pas la prise en compte par les investisseurs du contenu des divulgations à caractère social et/ou environnemental présentées dans les rapports annuels des entreprises, mais plutôt le signal communiqué par la publication d'un rapport de développement durable. Rappelons que la publication de rapports de développement durable par les entreprises canadiennes est une initiative volontaire. Comme cette initiative implique des efforts et des ressources, on peut croire que celles-ci en retirent un avantage possiblement supérieur à la simple communication d'éléments d'information à caractère environnemental et social à l'intérieur des rapports annuels. Aussi, ces avantages se manifesteraient-ils par une plus-value accordée par les investisseurs? La question demeure inexplorée. Très peu d'études ont en effet examiné la perception qu'ont les investisseurs de la publication de ce type de rapports.

Méthodologie

Afin d'examiner la prise en compte par les investisseurs de la publication par les entreprises d'un rapport de développement durable, une version empirique du modèle de Ohlson (1995) sensiblement similaire à celle utilisée par Cazavan-Jeny and JeanJean (2006) et Al Jifri and Citron (2009) a été utilisé. Ce modèle met en relation la capitalisation boursière des entreprises ($P_{i,t+6}$ * nombre d'actions ordinaires en circulation) avec la valeur comptable de leurs capitaux propres et leurs bénéfices. L'examen de la prise en compte par les investisseurs de la publication d'un rapport de développement durable s'est effectué en ajoutant à ce modèle une variable dichotomique prenant la valeur de 1 si l'entreprise a publié un rapport de développement durable pour l'année couverte par les états financiers et 0 autrement. La capitalisation boursière est évaluée à partir des données financières six mois après la fin de l'exercice financier duquel les données comptables sont utilisées, ceci dans le but de s'assurer que les rapports de développement durable aient été disponibles aux investisseurs et que l'information soit intégrée dans la valeur qu'ils accordent aux entreprises dans le cadre de nos analyses. Nous prévoyons que

les coefficients associés à la valeur comptable de l'avoir des actionnaires ordinaires (α_1) et au bénéfice net de l'entreprise (α_2) seront positifs et significatifs. Quant au coefficient concernant la publication des rapports de développement durable (α_3), le signe devrait être positif si les investisseurs perçoivent d'un bon œil la publication par les entreprises de ce type de rapports et négatif si les investisseurs perçoivent ces rapports plutôt d'un mauvais œil. Ils peuvent en effet percevoir que la publication de ces rapports engendre des coûts important tout en communiquant peu d'éléments d'information utiles. Le modèle utilisé prend ainsi la forme suivante :

$$VM_{i,t+6} = \alpha_0 + \alpha_1 VC_{i,t} + \alpha_2 BEN_{i,t} + \alpha_3 RDD_{i,t} + \alpha_{i,t} \quad (1)$$

Dans lequel,

$VM_{i,t+6}$ = valeur marchande des actions ordinaires de l'entreprise i six mois après la date de clôture des états financiers de l'exercice t;

$VC_{i,t}$ = valeur comptable de l'avoir des actionnaires ordinaires de l'entreprise i à la fin de l'exercice t;

$BEN_{i,t}$ = bénéfice de l'exercice t disponible aux actionnaires ordinaires de l'entreprise i;

$RDD_{i,t}$ = variable dichotomique égale à 1 si l'entreprise i publie un rapport de développement durable et égale à 0 autrement.

$\alpha_{i,t}$ = le terme d'erreur.

Échantillon et collecte de données

Les entreprises incluses dans l'échantillon sont celles composant l'indice composé S&P/TSX de la Bourse de Toronto, ceci dans le but d'obtenir un échantillon d'entreprises de taille intéressante susceptibles d'engager les coûts afférents à la production d'un rapport de développement durable. Des 209 entreprises composant cet indice, 48 fiducies de revenu y figuraient. Elles ont été retirées de l'échantillon puisqu'elles ne possèdent pas de capital actions ordinaires. L'échantillon final se composait donc de 161 entreprises.

Les éléments d'information financiers et comptables nécessaires pour réaliser les analyses statistiques ($VM_{i,t+6}$, $VC_{i,t}$ et $BEN_{i,t}$), soit respectivement la capitalisation boursière, la valeur comptable de l'avoir des actionnaires ordinaires et le bénéfice net, ont été collectés à l'aide de la base de données Bloomberg. Quant à la variable représentant la publication ou non de rapports de développement durable ($RDD_{i,t}$), les sites Internet des entreprises incluses dans l'échantillon ont été minutieusement examinés afin de repérer les entreprises qui publiaient un rapport de développement durable distinct de leur rapport annuel. Vingt-cinq des 161 entreprises incluses dans l'échantillon publiaient un tel rapport, ce qui représente un taux de 15,5 %. L'année 2007 a été retenue aux fins des analyses parce que les entreprises y présentaient un plus grand nombre de rapports de développement durable distincts. Les analyses sont aussi susceptibles d'être moins affectées par la chute des cours boursiers ayant pris place en 2008.

Résultats

Le tableau 1 présente les statistiques descriptives des entreprises incluses dans l'échantillon. Tel qu'observé, les entreprises incluses dans l'échantillon sont de taille relativement importante. Elles ont une capitalisation boursière moyenne de 9,4 milliards de dollars canadiens (médiane = 2,8 milliards). La valeur comptable moyenne de leurs capitaux propres de 3,9 milliards de dollars canadiens (médiane = 1,3 milliard) et leurs bénéfices nets moyens sont de 571 millions de dollars canadiens (médiane = 169,7 millions).

Tableau 1

Statistiques descriptives (N=161)

Variables ^b	Moyenne	Écart-type	Médiane	Minimum	Maximum
$VM_{i,t+6}$	9 442,35	14 876,66	2 818,53	295	73 922
$VC_{i,t}$	3 933,08	5 739,75	1 360,23	25	25 922
$BEN_{i,t}$	571,09	1 042,90	169,70	- 969	5 492

^a Les données financières sont présentées en millions de dollars canadiens.

^b $VM_{i,t+6}$ = valeur marchande des actions ordinaires de l'entreprise *i* six mois après la date de clôture des états financiers de l'exercice *t*; $VC_{i,t}$ = valeur comptable de l'avoir des actionnaires ordinaires de l'entreprise *i* à la fin de l'exercice *t*, $BEN_{i,t}$ = bénéfice de l'exercice *t* disponible aux actionnaires ordinaires de l'entreprise *i*.

Le tableau 2 présente les résultats des analyses effectuées à l'aide de la méthode des moindres carrés ordinaires. En raison de la présence d'hétéroscédasticité et de relations non linéaires, une transformation logarithmique a été apportée aux variables représentant la capitalisation boursière des entreprises ($VM_{i,t+6}$), la valeur comptable de l'avoir des actionnaires ordinaires ($VC_{i,t}$) et les bénéfices nets ($BEN_{i,t}$). Suite à cette transformation, les résidus respectaient l'hypothèse de normalité. En outre, aucun des facteurs d'inflation de la variance (VIF) qui mesurent l'augmentation de la variance des estimateurs due à la colinéarité qui existe entre les variables indépendantes n'était supérieur à 10, ce qui indique que la multicollinéarité entre ces dernières ne semble pas de nature à biaiser les résultats des analyses.

Comme on peut l'observer dans le tableau 2, dans le cadre du modèle 1, les coefficients des variables associées à la valeur comptable de l'avoir des actionnaires ordinaires ($VC_{i,t}$) et aux bénéfices nets ($BEN_{i,t}$) sont positifs et fortement significatifs comme prévu. Ils expliquent, à eux seuls, 73,6 % de la variance de la capitalisation boursière des entreprises (R^2 ajusté). Dans la colonne présentant le modèle 2, les mêmes analyses sont reprises, mais en y ajoutant toutefois aux variables indépendantes, la variable représentant la publication ou non d'un rapport de développement durable ($RDD_{i,t}$). Le coefficient de celle-ci est positif et significatif ($p < 0,05$). De plus, le

pourcentage d'explication de la variance de la capitalisation boursière (R^2 ajusté) s'est accru de 0,011.

Tableau 2

Résultats de l'analyse de régression; variable dépendante : $LVM_{i,t+6}$; N=161

Variables explicatives	Signe prévu	Modèle 1	Modèle 2
$LVC_{i,t}$	(+)	0,716***	0,687***
$LBEN_{i,t}$	(+)	0,056***	0,052**
$RD_{i,t}$	(?)		0,411**
Constante	(+)	2,730***	2,894***
R		0,858	0,864
R^2		0,736	0,747
R^2 ajusté		0,732	0,743
Changement du R^2 ajusté			0,011
Nb d'observations		161	161

*** $p \leq 0.001$; ** $p \leq 0.05$; * $p \leq 0.1$ (test unidirectionnel lorsque le signe est prévu).

*** $p \leq 0.001$; ** $p \leq 0.05$; * $p \leq 0.1$ (test bidirectionnel lorsque le signe n'est pas prévu).

$LVM_{i,t+6}$ = logarithme de la valeur marchande des actions ordinaires de l'entreprise i six mois après la date de clôture des états financiers de l'exercice t ; $LVC_{i,t}$ = logarithme de la valeur comptable de l'avoire des actionnaires ordinaires de l'entreprise i à la fin de l'exercice t , $LBEN_{i,t}$ = logarithme du bénéfice de l'exercice t disponible aux actionnaires ordinaires de l'entreprise i ; $RDD_{i,t}$ = variable dichotomique prenant la valeur de 1 si l'entreprise a publié un rapport de développement durable pour l'exercice couvert par les états financiers de et 0 autrement.

Ces résultats tendent ainsi à démontrer que les investisseurs accordent une certaine valeur à la publication d'un rapport de développement durable. En outre, ces résultats confirment que les entreprises qui investissent dans la publication d'un tel rapport bénéficient d'une prime sur les marchés financiers. C'est à tout le moins le cas pour les entreprises canadiennes.

Notons, par ailleurs, que la relation observée ne s'étend pas au contenu des rapports de développement durable. Elle ne concerne que la publication et la diffusion de ces derniers. Le signal positif, qui semble prendre place aux yeux des investisseurs, s'explique par différentes avenues qui restent à explorer. D'une part, il est possible que les investisseurs reconnaissent, dans la publication d'un rapport de développement durable, les efforts tangibles des entreprises en vue de communiquer à leurs parties prenantes leurs initiatives et réalisations dans le domaine du développement durable. Il est aussi possible que les investisseurs y voient des stratégies visant à développer un avantage concurrentiel, à améliorer l'image de l'entreprise (O'Dwyer, 2002), à gérer ses relations publiques (Reverte, 2009) ou encore visant à participer à la définition de standards volontaires ou mandatés de divulgation en matière de développement durable (Burh, 2007). Enfin, sachant que les investisseurs y perçoivent un signal positif, il est également

possible que certaines entreprises s'engagent dans la publication et diffusion de rapports de développement durable dans le but de profiter de cette plus-value sur les marchés financiers.

Conclusion

Cette étude a pour objectif d'examiner la prise en compte par les investisseurs de la publication de rapports de développement durable distinct de la part des entreprises. Les résultats de l'étude tendent à démontrer que les investisseurs accordent une valeur positive à la publication de ce type de rapport. Les raisons sous-jacentes à cette plus-value restent toutefois encore à explorer.

Tout en complétant les travaux antérieurs qui sont peu nombreux à avoir examiné la prise en compte par les parties prenantes, dont notamment par les investisseurs, des divulgations d'information des entreprises portant sur leurs responsabilités sociales et environnementales ou encore sur leurs initiatives et réalisations en matière de développement durable, les résultats de cette étude apportent des observations empiriques intéressantes pour les entreprises et les organismes de normalisation comptable ou de réglementation. En outre, les résultats de l'étude tendent à démontrer que les entreprises engagées dans la publication et diffusion d'un rapport de développement durable y trouvent un avantage financier. Cet avantage financier s'ajoute ainsi aux autres bénéfices pouvant être retirés de la publication et diffusion de ce type de rapport. Cet avantage peut aussi s'avérer intéressant pour les organismes de normalisation comptables ou les organismes de réglementation désireux de répondre aux besoins et attentes des parties prenantes. Les résultats de l'étude constituent en effet un argument à mettre de l'avant pour justifier le besoin d'intervention de ces derniers.

Soulignons que cette étude a certaines limites. L'échantillon n'est constitué que d'entreprises canadiennes de taille relativement importante et l'analyse se limite qu'à la publication de rapports de développement durable distincts. Notons, de plus, que sur la scène canadienne, peu d'entreprises semblent s'engager dans la publication de ce type de rapport. Dans le cadre de la présente étude, seulement 25 entreprises sur un total de 161 (15,5 %) publiaient un rapport de développement durable distinct du rapport annuel. L'identification des entreprises publiant ce type de rapport a été effectuée par une analyse minutieuse des sites Internet des entreprises composant l'échantillon. Malgré une attention toute particulière, il est toutefois possible que certaines entreprises publiant un rapport de développement durable n'aient pas été identifiées.

Compte tenu des résultats obtenus, différentes avenues de recherche semblent intéressantes. Il serait, par exemple, intéressant d'analyser le contenu de ces rapports de même que certaines caractéristiques susceptibles d'assurer leur crédibilité, telles que l'occurrence d'une opinion d'audit, le périmètre couvert par ces rapports, l'occurrence de publication d'indicateurs de performance et la nature de ces derniers, l'occurrence d'éléments d'information à caractère négatif, etc. (GRI, 2006). L'analyse de la prise en compte par les investisseurs de ces différents éléments pourrait également s'avérer intéressante tout comme l'inclusion dans le modèle de régression de variables contextuelles susceptibles de permettre de circonscrire les raisons sous-jacentes à la plus-

value accordée par les investisseurs aux entreprises qui publient un rapport de développement durable. Ces analyses permettraient, en effet, de préciser si les investisseurs accordent de la valeur aux initiatives et réalisations des entreprises en matière de développement durable ou si c'est plutôt à l'outil de gestion de l'image et des relations publiques que peuvent constituer les rapports de développement durable. Enfin, des analyses pourraient aussi être effectuées par secteur d'activités afin de préciser si les résultats sont généralisables à toutes les entreprises ou s'ils diffèrent d'un secteur d'activités à l'autre. Comme pour chaque secteur d'activités, les entreprises sont susceptibles d'avoir des répercussions différentes sur l'environnement, la société et l'économie régionale, il est possible que le contenu, les caractéristiques, les motivations des entreprises et la prise en compte des rapports de développement durable par les investisseurs soient sensiblement différents d'un secteur d'activités à l'autre.

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RAPPORTS DE DÉVELOPPEMENT DURABLE DE SOCIÉTÉS CANADIENNES EXPLOITANT DES RESSOURCES NATURELLES : QU'EN EST-IL?

L'objectif de la présente étude est d'analyser certaines caractéristiques des rapports de développement durable de sociétés canadiennes exploitant des ressources naturelles. Les caractéristiques étudiées sont les parties prenantes ciblées, les indicateurs de performance divulgués, l'ampleur de l'information à caractère négatif divulguée et le type d'assurance fournie.

Introduction

Dans les médias, il ne se passe pas une semaine sans qu'il soit question, quelque part au Canada ou dans le monde, d'activités industrielles polluantes, de mises à pied massives de travailleurs ou de retombées économiques liées à un projet. Ces trois types d'évènements (environnemental, social et économique) rejoignent les trois dimensions visées par le développement durable dans le Global Reporting Initiative (GRI, 2006). Quant à lui, le terme développement durable s'est répandu dans le vocabulaire de plusieurs acteurs économiques, politiques et sociaux depuis plus de 20 ans. Le rapport Bruntland (Commission mondiale sur l'Environnement et le Développement, 1987), aussi connu sous le nom de « Notre avenir à tous » lui attribut la définition suivante : « Le développement durable est un développement qui répond aux besoins du présent sans compromettre la capacité des générations futures de répondre aux leurs ». C'est à partir de cette définition que le GRI a établi des lignes directrices pour l'élaboration d'un rapport de développement durable pour des entreprises opérant dans différents secteurs d'activités.

Qu'il s'agisse d'une société pétrolière exploitant des sables bitumineux en Alberta et faisant l'objet de manifestations récurrentes de groupes environnementalistes, d'une société aurifère déplaçant plus de 200 résidences dans une communauté de 5 000 habitants ou d'une multinationale qui enregistre de trimestre en trimestre des profits importants, les attentes de la société envers les entreprises en terme de développement durable sont de plus en plus manifestes. Bien entendu, certains secteurs d'activités, de par leur nature, sont davantage ciblés. Entre autres, les secteurs pétroliers, miniers et forestiers qui sont tous des secteurs importants composant le S&P/TSX Composite Index, mais qui représentent aussi des secteurs ayant potentiellement des répercussions importantes sur l'environnement, sont surveillés de près. Pour répondre aux attentes de certaines parties prenantes, certaines de ces sociétés publient des rapports de développement durable qui font état de leurs efforts ou encore de leurs réalisations. Il devient donc intéressant d'analyser le contenu de ces rapports. De plus, il est intéressant de voir quelles sont les parties prenantes visées par ces rapports.

Le premier objectif de cette étude vise à identifier les indicateurs de performance proposés par le GRI version 3 (GRI, 2006) qui se retrouvent dans les rapports de développement durable de sociétés pétrolières, minières et forestières canadiennes listées à la Bourse de Toronto. En d'autres termes, le but est d'essayer de déterminer quels sont les indicateurs convergents et/ou différents publiés par ces entreprises à l'intérieur de leurs rapports de développement durable. Le portrait des indicateurs généralement utilisés par les entreprises canadiennes œuvrant dans le secteur des ressources naturelles permettra d'identifier les indicateurs que ces dernières divulguent volontairement le plus couramment. Ce sont donc des indicateurs pour lesquels les entreprises possèdent des systèmes d'information et qui pourraient faire l'objet d'initiatives de normalisation. Le deuxième objectif de l'étude vise à identifier les différentes parties prenantes ciblées par les rapports de développement durable de ces mêmes sociétés. Dans le même ordre d'idées, il devrait alors être possible de voir si certains secteurs d'activités ont davantage tendance à cibler certains groupes dans leurs rapports plutôt que d'autres. Le troisième objectif consiste à circonscrire le type d'assurance fournie par les rapports de développement durable étudiés. Plus précisément, on cherche à connaître la proportion de ces rapports qui obtiennent l'assurance d'un tiers ainsi que de connaître le type d'auditeurs choisi pour donner cette assurance. L'étude cherche également à relever les différences entre les sociétés pétrolières, minières et papetières à ce sujet. Finalement, toujours dans l'optique de tracer un portrait des rapports de développement durable de ces sociétés canadiennes, on s'intéresse également à savoir si elles diffusent de l'information à caractère négatif, et si oui, dans quelle proportion de leur rapport. On entend ici par information à caractère négatif, des dégâts environnementaux, des accidents de travail, des conflits de travail, etc.

Les contributions de cette étude se présentent sur différents aspects. D'une part, il est important de relever que celle-ci peut servir de références aux investisseurs et aux autres parties prenantes intéressées. Ils pourront, entre autres, s'y référer pour comparer les sociétés entre elles en tenant compte des différences pouvant prendre place entre les différents secteurs d'activités étudiés. Cette étude peut également servir de référence aux entreprises publiant ce type de rapport ou à celles désirant s'y engager. Finalement, cette étude fournit des observations empiriques qui pourront servir aux organismes de normalisation comptable ou aux instances gouvernementales advenant l'engagement de ces derniers dans l'élaboration d'un cadre de communication de l'information portant sur les pratiques des entreprises en matière de développement durable.

Cet article est divisé en plusieurs sections. La prochaine section présente les travaux antérieurs relatifs à la problématique étudiée. Elle traitera notamment des études ayant porté sur les différents indicateurs divulgués par les sociétés dans leur rapport de développement durable, les informations à caractère négatif diffusées par l'intermédiaire de ces derniers, les types d'assurance fournie ainsi que les parties prenantes visées par les entreprises. Cette section est suivie d'une description de la démarche méthodologique utilisée pour répondre aux objectifs de l'étude. Par la suite, les principaux résultats de l'étude seront présentés. Finalement, la conclusion présentera les limites de l'étude ainsi que les avenues de recherche à envisager.

Recensement des travaux antérieurs

De nombreux chercheurs se sont intéressés à différents aspects des rapports de développement durable publiés par les entreprises. Très peu d'études ont toutefois porté sur un échantillon d'entreprises canadiennes et très peu d'études ont tenté d'analyser les indicateurs de performance du GRI (GRI, 2006) publiés par des entreprises œuvrant dans les secteurs liés aux ressources naturelles. Plusieurs travaux antérieurs ont notamment eu pour objectif d'examiner les tendances actuelles et futures en matière de rapports de développement durable ou encore d'analyser une facette plus précise de ces rapports, que ce soit au niveau d'une des dimensions du

développement durable en particulier, du type d'assurance fournie, des indicateurs de performance privilégiés par les entreprises, des parties prenantes visées ou des éléments d'information à caractère négatif publiés.

En ce qui concerne les études qui se sont intéressées aux tendances que prennent les rapports de développement durable, Milne and Gray (2007) relèvent que depuis 1993, le nombre de sociétés à travers le monde ayant publié un rapport portant sur leurs initiatives et réalisations en matière de développement durable a considérablement augmenté jusqu'à 2003, passant d'un peu plus de 500 entreprises à plus de 1 500 entreprises. Ils relèvent également que les rapports en papier sont toujours populaires pour divulguer des éléments d'informations liés au développement durable, mais le média de diffusion le plus adopté est le site Internet corporatif.

D'un point de vue sectoriel, il semble que les secteurs pétroliers, miniers et des pâtes et papiers soient tous des secteurs qui performant relativement bien en matière de divulgations d'informations, puisque ces secteurs présentent respectivement 52 %, 52 % et 50 % des sociétés étudiées qui produisaient un rapport de développement durable en 2005. Seuls les secteurs des services publics et des produits chimiques et synthétiques font un peu mieux avec un peu plus de 52 % de leurs sociétés. Selon Milne and Gray (2007), les secteurs de l'industrie lourde et des ressources naturelles sont ceux qui font bonne figure en matière de rapports de développement durable. Pour ce qui est de l'assurance externe fournie sur ces rapports, moins de 50 % de ceux-ci étaient vérifiés par un auditeur externe en 2003. Bien qu'en augmentation constante de 2003 à 2005, il appert qu'il reste encore beaucoup à faire en ce qui concerne l'assurance externe fournie dans ces rapports. À cet effet, les sociétés américaines et allemandes seraient celles ayant le moins souvent recours à une assurance externe.

Ho and Taylor (2007) ont examiné les divulgations d'informations à caractères social, économique et environnemental des cinquante plus grandes sociétés américaines et japonaises. Ils ont développé une grille d'analyse de vingt éléments d'informations divulgués portant sur chacune des facettes du développement durable (économique, sociale, environnementale) et ont examiné la fréquence de divulgation de ces éléments dans trois médias différents; les rapports annuels, les rapports de développement durable ainsi que les sites Internet. Les éléments de divulgation analysés dans les différents médias ont été élaborés à partir des indicateurs du GRI (GRI, 2002) et d'autres études réalisées par des cabinets comptables. Selon Ho and Taylor (2007), l'envergure de la société aurait un impact significativement positif sur l'étendue des divulgations. Il semblerait également que les sociétés du secteur manufacturier aient une plus grande étendue de divulgations que celles des autres secteurs étudiés, ce qui semble venir contredire les résultats de Milne and Gray (2007) qui suggéraient que les entreprises des secteurs des ressources semblaient davantage disposées que celles des autres secteurs à publier des rapports de développement durable. De plus, il appert que les sociétés japonaises semblent effectuer des divulgations plus étendues que les sociétés américaines. Ceux-ci relèvent également que la profitabilité et les liquidités des entreprises semblent avoir une influence positive, alors l'endettement n'aurait pas d'impact significatif sur l'étendue des divulgations de celles-ci.

KPMG (2008) a réalisé une étude sur l'étendue des divulgations d'informations en matière de développement durable produite tous les trois ans, la dernière étant en 2008. Cette étude révèle qu'en 2008, les considérations éthiques influençaient davantage dans la décision de fournir des informations sur la responsabilité sociale corporative que les considérations économiques. En 2005, il s'agissait d'une tendance contraire. Réalisée auprès des sociétés du G250 et des 100 entreprises ayant les revenus les plus importants dans 22 pays, on y constate que la quasi-totalité des entreprises du G250 sondées utilisait les indicateurs du GRI pour communiquer leurs éléments d'information liés au développement durable. De plus, il appert

qu'environ 40 % de ces sociétés font désormais appel à l'opinion d'un tiers au regard des éléments d'information divulgués comparativement à 30 % en 2002 et 30 % en 2005. D'après KPMG (2008), les entreprises commenceraient à se rendre compte que le fait de divulguer des éléments d'information à caractère social, environnemental et économique crée de la valeur et qu'il existe un lien entre les profits et les principes corporatifs.

Kolk (2003) s'est, quant à lui, intéressé aux tendances en terme de divulgation d'éléments d'information non financiers du début des années 90 jusqu'au 21^e siècle. Tout comme dans le cadre des études précédentes, une tendance à la hausse en termes de nombre de rapports de développement durable publiés s'est confirmée. En outre, en 2003, le tiers des rapports publiés par les entreprises du G250 avaient l'assurance d'un tiers. De plus, la grande majorité de ces rapports audités provient de multinationales nippones ou européennes, là où les lois et l'encouragement à produire de tels rapports sont sans contredit plus forts qu'en Amérique (Kolk, 2003).

En ce qui concerne les secteurs et les pays qui excellent en terme de rapports de développement durable, comme le soulevaient Milne and Gray (2007), les secteurs des services publics et de l'énergie font toujours bonne figure. Cependant, Kolk (2003) note la présence du secteur de l'informatique ainsi que celui des produits chimiques au sommet des industries performantes en termes de divulgations d'éléments d'information liés au développement durable. Pour ce qui est des pays qui performent bien, Kolk (2003) relève le Royaume-Uni, le Japon et l'Allemagne en tant que pays où les sociétés sont le plus enclines à produire des rapports de développement durable. Il relève également que parmi les rapports de développement durable produits par des sociétés américaines, très peu ont été audités par un tiers comparativement aux autres régions géographiques, ce qui rejoint également les conclusions de Milne and Gray (2007).

Finalement, Kolk (2003) mentionne qu'une grande place semble accordée aux sujets financiers et sociaux dans les rapports de développement durable corporatifs. Il note cependant que les sujets dits traditionnels comme l'environnement, la philanthropie corporative et les relations avec les employés continuent d'occuper une place importante dans les rapports. En fait, que la législation et la normalisation ne seront pas plus directives à l'égard des rapports de développement durable, certains parmi ceux-ci risquent fort de continuer à être des déclarations d'intentions de la part des sociétés plutôt que de réels faits et ne pourront ainsi pas répondre pleinement aux attentes parties prenantes intéressées par ces rapports.

En somme, au regard des études antérieures, certaines tendances se dessinent. Notamment, le nombre de sociétés produisant des rapports de développement durable est à la hausse depuis plusieurs années. Il semble également que le Canada depuis les dernières années, se classe relativement bien en termes de sociétés qui fournissent des éléments d'information liés au développement durable. Il se positionne mieux que son voisin du sud. De plus, le secteur de l'énergie (un des secteurs étudiés dans cette étude) fait également bonne figure à ce sujet.

Une des études importantes à considérer au niveau de l'assurance fournie sur les rapports de développement durable est celle de Simnett et al. (2009). Cette étude a consulté 2 113 rapports de développement durable de sociétés provenant de 31 pays différents de 2002 à 2004 afin de déterminer les facteurs influençant le choix de fournir ou non une assurance externe sur ces rapports et le choix du type d'assurance. Selon Simnett et al. (2009), les entreprises les plus susceptibles de fournir une assurance sur leur rapport sont celles qui ont le plus grand besoin d'augmenter leur crédibilité sur ces rapports. Entre autres, les sociétés œuvrant dans les secteurs miniers, des services publics ou de la finance auraient une plus grande propension à fournir une assurance sur leurs rapports. De plus, les sociétés qui proviennent des pays davantage axés vers

les parties prenantes, telles que certains pays européens, sont plus susceptibles de recourir à l'assurance pour leur rapport, tout comme les pays où il existe un système légal plus élaboré. Pour ce qui est du choix du type d'assurance fournie, il semblerait que les sociétés domiciliées dans des pays davantage orientés vers les parties prenantes sont plus enclines à choisir un membre de la profession des experts-comptables pour fournir de l'assurance sur leurs rapports. Somme toute, il apparaît que la décision importante pour les sociétés est davantage de savoir si elles donneront de l'assurance à leur rapport plutôt que de savoir quel type d'auditeur en donnera.

À partir de 48 rapports de développement durable de 2005 produits par vingt-neuf sociétés minières et dix-neuf pétrolières, Guenther et al. (2006) ont examiné la nature des éléments d'information divulgués ainsi que la qualité des divulgations. Pour ce faire, 35 indicateurs de performance proposés par le GRI version 2 (GRI, 2002) ont été recensés à travers les rapports pour évaluer la quantité des divulgations à l'égard de ces indicateurs ainsi que la qualité de ces divulgations compte tenu de la façon dont la société adhère au GRI pour dévoiler ses réalisations dans le domaine du développement durable. Notons, par ailleurs, que cette étude portait uniquement sur des indicateurs de performance liés à la facette environnementale du développement durable. D'après Guenther et al. (2006), les sociétés étudiées divulguent en moyenne environ onze indicateurs environnementaux. De plus, seulement trois indicateurs de performance se sont avérés presque toujours divulgués, soient la quantité d'eau utilisée, la non-conformité et l'énergie directe utilisée. En outre, cinq indicateurs étaient soit complètement ou partiellement divulgués dans plus de la moitié des rapports : les émissions polluantes atmosphériques, les déversements, l'énergie indirecte utilisée pour la production, les gaz à effet de serre ainsi que les quantités de terre totales affectées. Pour ce qui est des sociétés pétrolières, le seul indicateur qui a été publié par plus de 50 % des sociétés étudiées est la quantité d'eau utilisée. Dans un même ordre d'idées, il semblerait que les indicateurs qui sont publiés en totalité ou partiellement par plus de la moitié des sociétés pétrolières dans cette étude soient les suivants : la quantité d'eau totale utilisée, les émissions atmosphériques, la non-conformité, l'énergie directe utilisée, les déversements, les émissions de gaz à effets de serre, la quantité totale de déchets générés et les initiatives en faveur des énergies renouvelables. L'étude a également démontré que, de façon générale, trois indicateurs se distinguent quant à la quantité ainsi qu'à la qualité des divulgations, soit la quantité d'eau utilisée, la conformité aux lois et les émissions atmosphériques.

En somme, selon Guenther et al. (2006), le secteur minier divulgue davantage d'indicateurs de performance que le secteur pétrolier. De plus, en ce qui a trait à la qualité des divulgations, le pourcentage d'indicateurs évalués comme publié en totalité est plus élevé pour le secteur minier. Finalement, il est également possible de constater certaines différences dans le choix des indicateurs de performance publiés entre les deux secteurs. Les sociétés minières sont davantage axées vers l'utilisation de l'eau et la conformité aux lois, tandis que les pétrolières divulguent davantage d'indicateurs liés aux émissions, au gaspillage, aux déversements et au transport.

Toujours en ce qui concerne les indicateurs de performance publiés par les sociétés, Morhardt et al. (2002) ont évalué les rapports de l'année 1999 de 40 sociétés industrielles. Pour ce faire, les guides du GRI (GRI, 2000) et celui de l'ISO 14031 ont été convertis en un système de pointage. Ce dernier avait pour but d'évaluer jusqu'à quel point les 40 rapports étudiés marquent des points avec ce système ainsi qu'avec trois autres systèmes de pointage existants déjà. De prime à bord, il semble que les résultats étaient beaucoup plus faibles avec les nouvelles grilles du GRI et de l'ISO qu'avec les systèmes actuels, car les nouveaux guides sont beaucoup plus complets et détaillés. À titre d'exemple, les sujets économiques et sociaux qui comptaient pour 42 % du pointage maximal de la grille du GRI étaient très peu traités dans ces rapports. Pour

ce qui est des sociétés du secteur pétrolier, il semble que celles-ci aient obtenu des pointages plus faibles que les sociétés du secteur de l'automobile et celles du secteur de l'électronique, mais un peu plus élevés que celles du secteur des services publics. De plus, il semble que pour ce qui est des indicateurs de performance et des informations portant sur le volet économique, la grande majorité des sociétés pétrolières ont obtenu un pointage presque nul.

Quant aux éléments d'informations à caractère négatif publiés dans les rapports de développement durable, très peu d'études antérieures ont été réalisées à cet effet. Clarkson et al. (2007) ont toutefois étudié la relation existante entre la performance environnementale et les divulgations d'éléments d'information à caractère environnemental. Pour mener à bien leur étude, ils ont réalisé des analyses de contenus au niveau des divulgations d'éléments d'information à caractère environnemental et ils ont testé deux théories existantes contradictoires. La première, la théorie des divulgations volontaires prétend qu'il existe une relation positive et significative entre la performance d'une société et l'étendue de ses divulgations, tandis que la deuxième théorie, la théorie sociopolitique soutient une relation négative, puisque les divulgations sont influencées par le cadre réglementaire et légal. Donc, lorsqu'une société performe peu, le cadre réglementaire doit être plus fort pour surveiller et encadrer cette performance, ce qui amène la société à divulguer davantage d'éléments d'information.

Les résultats de Clarkson et al. (2007) tendent à démontrer que plus la performance environnementale est bonne, plus l'entreprise sera portée à divulguer des informations complètes et nombreuses, ce qui corrobore la théorie des divulgations volontaires. En outre, même si une société ayant une bonne performance environnementale dévoile davantage d'éléments d'information, il appert qu'elle divulgue peu d'éléments d'information répondant aux exigences du GRI (GRI, 2002).

Peu d'études ont été réalisées par le passé à l'égard des différentes parties prenantes visées par les sociétés et leurs rapports de développement durable. Moneva et al. (2007) se sont intéressés à la façon dont les sociétés visaient les parties prenantes selon leur performance sociale et financière. Ils ont étudié l'énoncé de mission des rapports de développement durable de 52 sociétés espagnoles. La mission, la vision et les valeurs des sociétés permettaient de cerner les parties prenantes stratégiques ou l'orientation vers les actionnaires. D'un autre côté, pour évaluer la performance sociale, une grille a été bâtie à partir des indicateurs du GRI (GRI, 2002) et des indicateurs financiers traditionnels ont été utilisés pour évaluer la performance économique des sociétés. Moneva et al. (2007) ont observé que le secteur des télécommunications et celui des produits pétroliers ont obtenu de bons résultats pour ce qui est de cibler les parties prenantes et de publier des éléments d'information au sujet du développement durable. D'après leurs résultats, il semble également que les sociétés sondées qui sont davantage axées vers les parties prenantes ont obtenus de meilleurs rendements des actifs et des capitaux propres, bien que cette relation fût un peu plus faible pour les sociétés pétrolières. En somme, les sociétés qui se soucient et ciblent de façon adéquate plusieurs parties prenantes peuvent très bien réussir sur le plan financier. Cette conclusion a pour effet de rejeter l'hypothèse qui prétendait que les sociétés qui performaient mieux en terme de développement durable et au niveau social avaient de moins bons résultats financiers que les autres sociétés.

Méthodologie

Les données collectées dans cette étude l'ont été à partir de vingt rapports de développement durable publiés par des sociétés des secteurs pétroliers, miniers et des pâtes et papiers inscrits à la Bourse de Toronto. Ces sociétés ont été sélectionnées selon la disponibilité de leur rapport de développement durable 2007 sur leur site Internet.

L'analyse des rapports de développement durable a été basée sur la Global Reporting Initiative version 3 (GRI, 2006). Le GRI est une organisation mondiale qui veille à développer un cadre conceptuel pour la diffusion d'éléments d'information portant sur les initiatives et réalisations des sociétés en matière de développement durable. Le GRI a publié quelques rapports pour le « reporting » du développement durable depuis 2000. Celui utilisé par cette étude est le G3 (GRI, 2006). Le guide du GRI propose plusieurs indicateurs pour mesurer la performance des trois facettes du développement durable des sociétés, soit 9 indicateurs de performance économique, 30 de performance environnementale et 40 de performance sociale. Au total, les 79 indicateurs de performance proposés par le GRI ont été retenus aux fins de l'analyse.

De plus, une analyse des parties prenantes visées par les sociétés à l'intérieur des rapports a été réalisée ce qui a permis d'évaluer la fréquence où l'on retrouve les principales parties prenantes. Par ailleurs, il faut mentionner que le G3 fournissait déjà plusieurs parties prenantes potentielles que les entreprises pouvaient cibler dans leurs rapports, mais les autres parties prenantes présentes étaient également notées dans la grille d'analyse. Pour ce qui est de l'assurance fournie par ces rapports, chacun des vingt rapports a été analysé pour voir si une opinion externe avait été émise. Dans ce cas, le type d'auditeur (expert-comptable, consultant en environnement, etc.) a été relevé. Finalement, pour ce qui est de l'information à caractère négatif, toutes les phrases où l'on faisait mention dans le rapport d'événements ou d'actions posées à caractère négatif pour la société ont été relevées dans la grille d'analyse. Par la suite, le nombre de mots ayant servi à divulguer des éléments négatifs a été calculé en proportion du nombre total de mots présents dans le rapport. Ainsi, il a été possible d'analyser le pourcentage d'éléments d'information à caractère négatif publié par les sociétés.

Au regard des liens existants entre le type d'assurance fournie et les indicateurs de performance divulgués par les sociétés, une analyse descriptive a été réalisée plutôt qu'un tableau croisé, ceci en raison de la taille de l'échantillon et du nombre de sociétés dont le rapport faisant l'objet d'une assurance externe.

Résultats

Caractéristiques de l'échantillon

Comme le montre le tableau 1, le chiffre d'affaires (CA) moyen des vingt entreprises analysées est de 7 028 millions de dollars canadiens. Le secteur où les entreprises ont en moyenne le chiffre d'affaires le plus élevé des produits pétroliers.

Tableau 1

Caractéristiques de l'échantillon par secteur d'activités

Secteurs	CA (M\$)	Actif (M\$)	%ON	%BC	%AB	%QC	%SK
Pétrolier	13 386	23 536	0,0 %	0,0 %	100,0 %	0,0 %	0,0 %
Minier	2 329	8 042	62,5 %	25,0 %	0,0 %	0,0 %	12,5 %
Pâtes et papiers	3 706	4 351	0,0 %	50,0 %	0,0 %	50,0 %	0,0 %
Tous les secteurs	7 028	13 501	25,0 %	20,0 %	40,0 %	10,0 %	5,0 %

En moyenne, on observe également que l'actif (ACTIF) moyen de ces vingt sociétés se situait à plus de 13 501 millions de dollars canadiens, ce qui démontre que l'échantillon est

composé de grandes sociétés canadiennes œuvrant dans les secteurs des ressources naturelles. Pour ce qui est de la représentativité géographique, en se basant sur l'emplacement des sièges sociaux, les sociétés du secteur pétrolier se situent en totalité en Alberta (AB). Les sociétés du secteur minier se situent principalement en Ontario (ON) et en Colombie-Britannique (BC), tandis que les sociétés de secteur des pâtes et papiers se situent au Québec (QC) et en Colombie-Britannique (BC). En somme, pour tous les secteurs étudiés, 40 % des sociétés ont leur siège social en Alberta, 25 % en l'Ontario, 20 % en Colombie-Britannique, 10 % au Québec, et finalement, 5 % en Saskatchewan.

Analyse des résultats

Le premier élément considéré a été d'examiner si les sociétés canadiennes exploitant des ressources naturelles se basent sur le GRI (GRI, 2006) pour réaliser leur rapport de développement durable. Des vingt sociétés étudiées, 60 % de celles-ci utilisent les indicateurs du GRI en tout ou en partie pour communiquer leur performance (tableau 2). Cette statistique contraste quelque peu avec l'étude menée par KPMG (2008) où l'on relève que la quasi-totalité des entreprises sondées utilisait les indicateurs du GRI pour communiquer leur performance en matière de développement durable. Ce résultat s'explique par le fait que l'étude de KPMG (2008) a été réalisée auprès du Global 250 qui est composé des 250 plus grandes entreprises mondiales, tandis que la présente recherche s'intéresse à vingt entreprises canadiennes des secteurs des ressources naturelles dont certaines ont un chiffre d'affaires qui ne dépasse pas le milliard de dollars canadien. On peut, en effet, croire que moins de ressources peuvent être accordées à la réalisation d'un rapport de développement durable par des sociétés de plus petite taille. Il appert également que le secteur pétrolier est celui qui communique davantage d'indicateurs de performance, ce qui concorde avec des études antérieures affirmant que le secteur pétrolier faisait bonne figure au niveau de la qualité de son « reporting » en matière de développement durable.

Tableau 2

Pourcentage d'utilisation des indicateurs de performance du GRI (2006)

Par secteurs d'activités	Utilisation des indicateurs G3
Pétrolier	87,5
Minier	37,5
Pâtes et papiers	50,0
Tous les secteurs	60,0

Parmi les douze sociétés (60 % de l'échantillon total) utilisant les indicateurs de performance proposés par GRI dans leur rapport de développement durable, le pourcentage des indicateurs publiés a été recensé par catégorie. Le tableau 3 présente l'ensemble des résultats relatifs aux indicateurs de performance proposés par le GRI et publiés par les sociétés étudiées.

En moyenne, les sociétés du secteur pétrolier publient 16,8 indicateurs environnementaux sur une possibilité de 30, donc 56,03 %. Les sociétés du secteur pétrolier sont, en outre, celles qui publient le plus d'indicateurs du GRI dans leurs rapports, ce qui est contradictoire avec Guenther et al. (2006) mentionnant que les sociétés minières étaient celles qui publiaient le plus d'indicateurs. Il convient également de mentionner que les sociétés papetières font piètre figure

pour ce qui est de l'utilisation des indicateurs du GRI. Il semble par ailleurs que les sociétés minières publient davantage d'indicateurs de performance sociale.

On peut observer que douze indicateurs de performance sur un total de 79 (9 économiques, 30 environnementaux et 40 sociaux) ont été publiés dans au moins 75 % des rapports utilisant GRI. Parmi ceux-ci, on retrouve la valeur économique directe créée (EC1), les politiques, pratiques et part des dépenses réalisées avec les fournisseurs locaux (EC6), le volume d'eau prélevé par source (EN8), les émissions totales, directes ou indirectes de gaz à effet de serre (EN16), les émissions de NOx et SOx dans l'air (EN20), le nombre total et le volume des déversements accidentels et significatifs (EN23), le montant total des amendes significatives et nombre total de sanctions non pécuniaires en matière de réglementations en environnement (EN28), l'effectif total par type d'emploi, contrat de travail et zone géographique (LA1), le pourcentage des salariés couverts par une convention collective (LA4), le taux d'accidents de travail, de maladies professionnelles, d'absentéisme (LA7), la nature et l'efficacité de tout programme de gestion des impacts des activités sur les communautés (SO1) et l'affichage politique et la participation à des lobbys (SO5). Ces résultats se rapprochent en quelques points à ceux de Guenther et al. (2006), car selon leur étude spécifique au volet environnement, les quantités d'eau utilisée (EN8), les non-conformités (EN28), les émissions atmosphériques polluantes (EN20), les déversements accidentels (EN23) et les gaz à effet de serre (EN16) étaient les indicateurs de performance les plus souvent divulgués.

Tableau 3

Pourcentage d'utilisation des indicateurs de performance du GRI (2006) par société

Secteurs et sociétés	Écono- mique	Enviro.	Social			
			Emploi / rel. soc.	Droits de l'homme	Société	Resp. produits
Pétrolier :						
Talisman	77,78	60,00	64,29	100,00	75,00	44,44
ARC Energy	11,11	55,56	35,71	11,00	25,00	11,11
Canadian Nat. Ress.	44,44	30,00	7,14	0,00	12,5	0,00
Encana	55,56	56,67	42,86	0,00	12,5	0,00
Imperial Oil	44,44	53,33	64,29	0,00	37,5	11,11
Nexen	44,44	36,67	42,86	22,22	50,00	22,22
Suncor	77,78	100,00	100,00	100,00	100,00	100,00
Moyenne du secteur	50,79	56,03	51,02	33,32	44,64	26,98
Minier :						
Kinross	100,00	60,00	64,29	11,11	25,00	0,00
Goldcorp	0,00	10,00	78,57	100,00	100,00	66,67
Inmet Mining	44,44	46,67	35,71	11,11	37,50	11,11
Moyenne du secteur	48,15	38,89	59,52	40,74	54,17	25,93

Pâtes et papiers :						
Catalyst paper	0,00	26,67	21,43	44,44	25,00	0,00
Domtar	33,33	40,00	7,14	0,00	25,00	0,00
Moyenne du secteur	16,67	33,33	14,29	22,22	25,00	0,00

On peut croire que les indicateurs de performance les plus faciles à mesurer et à quantifier soient ceux le plus souvent couverts dans les rapports de développement durable, ce qui vient rejoindre la théorie élaborée par Guenther et al. (2006). Notons toutefois que sept indicateurs sur les 79 étudiés se retrouvent dans moins de 10 % des rapports. Ces indicateurs sont la distribution des ratios comparant le salaire d'entrée de base et le salaire minimum local (EC5), l'énergie économisée grâce à l'efficacité énergétique (EN5), le nombre d'espèces menacées figurant sur la liste rouge mondiale de l'UICN dont les habitats se retrouvent sur des zones d'exploitation de l'entreprise (EN15), l'identification, la taille, le statut de protection et la valeur de la biodiversité des sources d'approvisionnement en eau (EN25), les questions de santé et sécurité couvertes par des accords formels avec les syndicats (LA9), les pratiques relatives à la satisfaction des clients (PR5) et le nombre total d'incidents de non-conformité aux réglementations et aux codes volontaires relatifs aux publicités (PR7).

En ce qui concerne les parties prenantes, cette étude s'est intéressée à celles les plus fréquemment ciblées par les sociétés. En outre, il appert que les communautés sont visées dans presque tous les rapports de développement durable. Ensuite, viennent les actionnaires, les salariés et syndicats et les gouvernements. Finalement, le secteur minier serait celui dont les sociétés visent le plus de parties prenantes. Il est toutefois suivi de près par les entreprises du secteur pétrolier qui en vise aussi plusieurs, ce qui rejoint en quelque sorte l'étude de Moneva et al. (2007). Le tableau 4 présente ses résultats.

Tableau 4

Parties prenantes visées par secteur d'activités (en %)

Secteur	Communautés	Société civile	Clients	Actionnaires	Fournisseurs	Salariés et syndicats	Gouv.	Autochtone	Autres
Pétrolier	100,0	37,5	37,5	62,5	62,5	62,5	87,5	75,0	32,5
Minier	100,0	50,0	50,0	100,0	87,5	75,0	75,0	25,0	50,0
Pâtes et papiers	75,0	50,0	50,0	50,0	50,0	100,0	75,0	50,0	0,0
Tous les secteurs	95,0	45,0	45,0	75,0	70,0	75,0	80,0	50,0	35,0

Pour ce qui est des éléments d'information à caractère négatif, le pourcentage de divulgation de ceux-ci a été obtenu en divisant le nombre de mots des phrases constituées d'éléments d'information à caractère négatif par le nombre total de mots du rapport de développement durable. Le tableau 5 présente les résultats pour l'ensemble des entreprises constituant l'échantillon.

Le pourcentage d'informations négatives varie entre 0 et 5 % pour 19 des 20 rapports de développement durable. Notons qu'un rapport se démarque des autres, celui de la société Canfor qui a publié des éléments d'information à caractère négatif pour plus de 12 % de son rapport. Soulignons que la société Cascades, considérée par plusieurs comme une pionnière du développement durable, n'a publié aucun élément d'information à caractère négatif dans son rapport de développement durable. Comme cette société est considérée comme une référence en matière de développement durable, cela diverge de la théorie de la divulgation volontaire corroborée par Clarkson et al. (2007) voulant qu'une société ayant une bonne performance dévoile davantage d'éléments d'information, incluant les éléments d'information à caractère négatif. En somme, en excluant Canfor de l'échantillon, on remarque que ce sont les sociétés minières qui sont portées à divulguer davantage d'éléments d'information à caractère négatif, bien que la différence soit minime avec les autres secteurs d'activités. Finalement, il appert que l'entreprise moyenne, tous secteurs confondus, consacre en moyenne 2,3 % de son rapport à la divulgation d'éléments d'information à caractère négatif.

Tableau 5

Pourcentage d'éléments d'information à caractère négatif

Pétrolier :	Informations (-)	Minier :	Informations (-)
Talisman	1,61	Kinross	1,03
ARC Energy	2,64	IamGold	4,63
Canadian Natural Res.	1,06	Hudbay Minerals	2,86
Husky	1,00	GoldCorp	1,32
Encana	0,77	Inmet Mining	3,84
Imperial Oil	1,90	Potash Corp.	0,93
Nexen	1,90	Teck Cominco	2,49
Suncor	2,09	Yamana Gold	0,18
Moyenne du secteur	1,62	Moyenne du secteur	2,16
Pâtes et papiers :	Informations (-)		
Catalyst paper	2,40		
Cascades	0,00		
Canfor	12,53		
Domtar	0,87		
Moyenne du secteur	3,95		
Moyenne globale :			2,30

En ce qui a trait à l'assurance fournie par les sociétés publiant des rapports de développement durable, seulement cinq rapports présentaient une assurance externe, ce qui contraste avec les études antérieures portant sur les grandes tendances en matière de « reporting » du développement durable. Entre autres, KPMG (2008) mentionnait qu'environ 40 % des rapports étaient désormais vérifiés par un tiers, tandis que dans la présente étude, le pourcentage

est de 25 %. Il faut cependant garder à l'esprit que l'échantillon est somme toute limité du point de vue de sa taille et que les entreprises le composant sont de plus petites envergures que celles du G250 utilisées pour mener l'étude de KMPG. De plus, selon Simnett et al. (2009), les sociétés qui font le plus appel à l'assurance d'un tiers sont celles qui ont le plus besoin de crédibilité pour étayer leur performance en termes de développement durable. Notamment, Simnett et al. (2009) relèvent le secteur minier comme étant l'un des secteurs démontant une plus grande disposition à aller chercher une assurance externe pour ses rapports de développement durable. Selon les données recueillies, six sociétés ont présenté une assurance externe dans leur rapport de développement durable. La société Domtar a toutefois fait appel à un tiers uniquement pour les questions relatives aux quantités d'énergie consommée. En somme, parmi les sociétés qui ont eu recours à une assurance externe, cinq ont choisi de faire appel à un cabinet comptable (trois ont choisi PriceWaterhouseCoopers, deux ont choisi Deloitte & Touche) et une a fait appel à des ingénieurs consultants pour une assurance limitée à l'énergie consommée.

Conclusion

Cette étude s'est intéressée à l'analyse des rapports de développement durable de sociétés canadiennes exploitant des ressources naturelles. En tout, vingt rapports, dont huit d'entreprises œuvrant dans le secteur pétrolier, huit dans le secteur minier et quatre dans le secteur des pâtes et papiers ont été analysés. Plus précisément, cette étude s'intéressait à voir quels sont les indicateurs du GRI utilisés par ces sociétés pour faire état de leur performance en matière de développement durable, quelles parties prenantes sont les plus couramment visées par ces sociétés, dans quelles mesures les entreprises dévoilent-elles des informations à caractère négatif et quel type d'assurance est généralement fournie dans ces rapports.

Les résultats tendent à démontrer que les entreprises pétrolières sont celles qui publient davantage d'indicateurs de performance proposés par le GRI et que les entreprises minières seraient davantage portées à divulguer des indicateurs de performance sociaux. Pour ce qui est des parties prenantes visées, il appert que les communautés, les gouvernements, les salariés et syndicats ainsi que les actionnaires sont toutes des parties prenantes privilégiées par les sociétés dans leurs rapports de développement durable. En outre, cette étude a permis de constater que les Autochtones étaient une partie prenante régulièrement visée par les rapports de développement durable. Cette étude a permis de plus de constater que les entreprises étudiées accordent en moyenne 2,3 % de leur rapport à des éléments d'information à caractère négatif et que les sociétés pétrolières sont celles qui leur accordent le moins d'importance. Finalement, parmi les vingt sociétés étudiées, seulement cinq ont fourni une assurance externe complète de leur rapport et une autre a fourni une assurance partielle.

Cette étude fournit des observations empiriques qui pourront servir de références aux investisseurs lors de leur lecture des rapports de développement durable. Ces observations pourront également permettre aux entreprises de se comparer entre elles. De plus, elles mettent en lumière les limites des rapports de développement durable actuellement publiés par les sociétés canadiennes, ce qui peut éventuellement intéresser les organismes de normalisation comptable ou encore les instances gouvernementales désireuses d'améliorer les pratiques de divulgation des entreprises dans ce domaine. Enfin, cette étude est l'une des premières à s'intéresser aux entreprises canadiennes œuvrant dans des secteurs d'activités reconnus comme ayant d'importantes répercussions environnementales et sociales. Elle est aussi l'une des rares études à avoir analysé la proportion des rapports de développement durable consacrés à des éléments d'information à caractère négatif.

Cette étude a certaines limites. Parmi celles-ci, relevons que l'échantillon est de taille relativement restreinte. Il provient toutefois de trois secteurs d'activités différents du domaine des ressources naturelles. De plus, les analyses se sont limitées aux rapports de développement durable publiés, plusieurs entreprises publient toutefois plusieurs éléments d'informations liés au développement durable sur leur site Internet. Finalement, il faut souligner que malgré une attention toute particulière, la recension des éléments d'information à caractère négatif est sujette à interprétation.

Cette étude soulève différentes avenues de recherche. Il pourrait, en autres, être intéressant d'interroger les entreprises sur leurs motivations à publier ou non ce type de rapport de même que sur leurs motifs à privilégier une dimension du développement durable par rapport à une autre. Les raisons sous-jacentes au recours à une assurance externe et aux types d'assurance externe pourraient aussi être un sujet d'étude intéressant. Dans un autre ordre d'idées, l'impact d'un rapport de développement durable fournissant une assurance sur la perception des parties prenantes serait également une avenue de recherche intéressante.

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ANALYSE DU CONTENU SOCIAL, ENVIRONNEMENTAL ET ÉCONOMIQUE DES RAPPORTS DE DÉVELOPPEMENT DURABLE DE SOCIÉTÉS CANADIENNES

L'objectif de cette étude est de dresser un portrait du contenu des rapports de développement durable publiés par les entreprises canadiennes en fonction des trois volets du Global Reporting Initiative (GRI). Les résultats tendent, entre autres, à démontrer de très grands écarts dans les pratiques de divulgation des entreprises étudiées.

Introduction

Depuis plusieurs années déjà, de nombreux experts se sont penchés sur le développement des sociétés en tenant compte de leurs impacts à l'échelle mondiale. Il suffit de penser aux changements climatiques, le réchauffement planétaire ne peut plus être mis en doute (IPCC, 2007). On peut aussi regarder la raréfaction des ressources naturelles comme « l'or bleu » (c.-à-d. l'eau potable) ou encore la perte de biodiversité causée en majeure partie par la perte d'habitat (Environnement Canada, 2009). Il n'y a pas que le secteur environnemental qui est touché par les acteurs mondiaux. En effet, sur le plan social, l'écart de niveau de vie entre les pays développés et sous-développés est grandissant. Dans la foulée, la chute brutale de très grandes entreprises comme Enron et Worldcom, ou encore Norbourg d'un point de vue national, a eu de nombreux impacts économiques sur la société dans son ensemble. Pour ces diverses raisons, le concept de développement durable est de plus mis de l'avant.

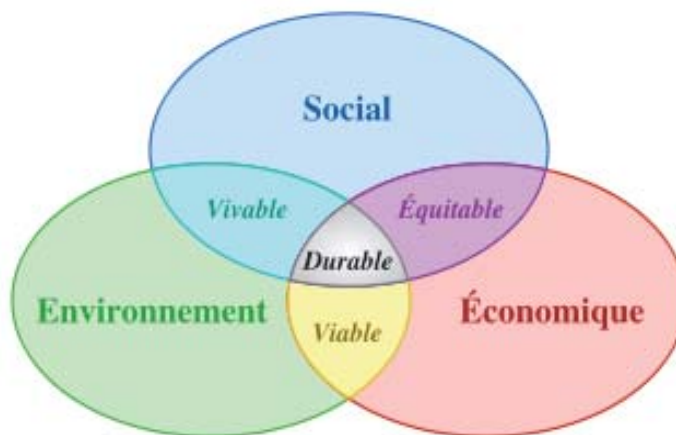
C'est en 1987, peu après l'introduction du terme développement durable ou développement soutenable, anglicisme de « sustainable development », qu'apparaît la première définition du concept. Selon le rapport Brundtland (WCED, 1987), ayant pour titre « Notre avenir à tous » de la commission mondiale sur l'environnement et le développement, le développement durable est : « un mode de développement qui répond aux besoins du présent sans compromettre la capacité des générations futures de répondre aux leurs ». Cette définition du terme s'orientait davantage sur les enjeux environnementaux, préoccupation publique croissante à cette époque. Ce n'est que cinq ans plus tard, soit au sommet de la terre à Rio que la Convention de Rio (UNEP, 1992) vient introduire le concept des « trois dimensions ». Ces dernières doivent être conciliées dans une optique à long terme et à l'échelle mondiale afin de permettre un développement dit durable (Figure 1).

Au Canada, il n'existe actuellement aucune législation pour les entreprises privées ou publiques quant à la divulgation d'information intégrant les critères de développement durable, et ce, tant au niveau de la quantité que de la qualité de l'information. Cette recherche s'inscrit dans une série d'études concernant la divulgation volontaire d'informations portant sur le développement durable au Canada. Elle se différencie de ces dernières par l'analyse du contenu des rapports de développement durable publiés par les plus grandes entreprises canadiennes en fonction des trois dimensions du développement durable. De plus, cette recherche utilise le GRI comme base de référence au développement de son instrumentation. Les résultats pourront servir de point de référence aux entreprises canadiennes engagées ou désirant

s'engager dans l'élaboration de rapports de développement durable. Elles pourront aussi servir de jalons aux différentes instances désireuses de s'impliquer dans la normalisation ou la réglementation de ce type d'éléments d'information.

Figure 1

La conciliation des trois dimensions du développement durable¹



La suite de ce document est subdivisée comme suit; en premier lieu est présenté un survol des principaux travaux portant sur le sujet ainsi que la méthodologie de recherche utilisée. En dernier lieu sont présentés les principaux résultats de l'étude et une brève conclusion.

Cadre théorique

Au cours dernières années, il y a eu des avancées spectaculaires sur la scène mondiale concernant les rapports de développement durable. En effet, entre 2005 et 2008, le pourcentage des entreprises parmi les 250 plus grosses entreprises au monde produisant ce type de rapport a augmenté de 27 %, passant de 52 % à 79 % (KPMG, 2008).

Il appert cependant que la communication de tels renseignements ne semble pas aussi utile à tous les utilisateurs. Les investisseurs sont, en effet, mécontents de la qualité et de la quantité des divulgations et en découlent que les rapports de développement durable sont vus comme étant inutiles à la prise de décision (Solomon, 2006). Par ailleurs, le processus de divulgation, pour sa part, n'est cependant pas inutile, le fait de devoir développer un rapport de développement durable amène des changements dans la philosophie et les pratiques de gestion au sein de l'organisation. En outre, il affecte aussi les stratégies de gestion et les systèmes d'information en place (Dierkes and Antal, 1985) tout en intégrant la notion de durabilité dans les plans stratégiques (Adams and McNicholas, 2006). Afin de rendre compte des informations pertinentes pour les utilisateurs, différents organismes se sont créés pour tenter de baliser le processus.

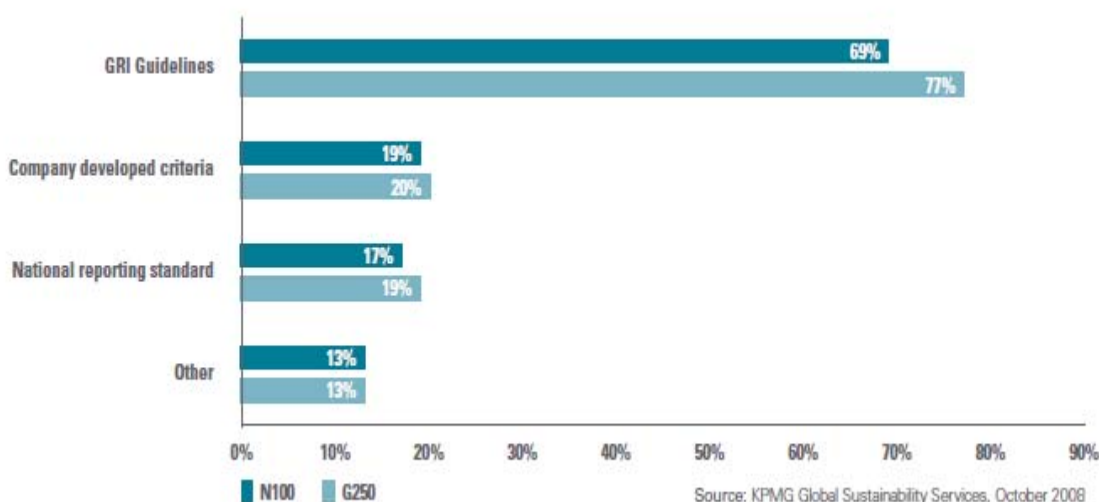
Il existe actuellement bon nombre d'organismes promouvant la divulgation d'information portant sur le développement durable suivant les critères d'équilibre entre les dimensions économique, sociale et

¹ Source : <http://www.uved.fr/fileadmin/user>

environnementale. Certains des plus importants d'entre eux fournissent même un guide sur la façon de divulguer les informations et/ou d'y intégrer certains indicateurs de performance. Selon un sondage du World Bank Group, certains de ces organismes les plus influents sont le GRI, ISO, WBCSD, ILO, AA1000 et Global compact (World Bank Group, 2003). Ces différents organismes divergent dans leurs directives quant au poids accordé à la durabilité environnementale et sociale par opposition à la durabilité de l'entreprise elle-même, à l'accent sur les principes de divulgation au contenu du rapport et finalement, aux dimensions particulières auxquelles le rapport devrait répondre (Adams and Narayanan, 2006). De ces différents organismes, un guide ressort comme étant le plus utilisé, et ce, en partie due à la façon dont il a été conçu : un processus cherchant un consensus parmi de multiples intervenants. Actuellement, 77 % des 250 plus grosses entreprises au monde (G250) et près de 70 % des 100 plus grosses entreprises par revenu dans 22 pays (N100), dont le Canada, utilisent les directives du « Global Reporting Initiative » (GRI) comme moyen de divulgation (KPMG, 2008) (Figure 2). Selon Milne and Gray (2007) « the GRI has become an important catalyst in re-energizing and lifting the quality of reporting not only among some of the largest and leading reporters, but also for some newcomers ».

Figure 2

Normes et directives de divulgation utilisée par les entreprises (G250 et N100)



Diverses études ont été effectuées sur les différents piliers du développement durable sans pour autant les comparer entre eux. Au regard de l'environnement, Clarkson et al., (2008) ont décelé une relation positive entre la performance environnementale d'une société et son niveau de divulgation volontaire. Il a aussi été démontré que la stratégie de divulgation est influencée par la nature des activités d'une société, de sa taille, de sa visibilité médiatique ainsi que de sa performance sociale (Brammer and Pavelin, 2004). Dans le même ordre d'idées, Fortanier and Kolk (2007) relèvent que la divulgation à caractère économique d'une entreprise varie en fonction de la région géographique, du secteur d'activité, de sa taille, mais pas de sa profitabilité. Lorsqu'étudiée comme un ensemble (économique, social et environnemental), la divulgation est plus importante pour les plus grandes entreprises moins profitables, avec moins de liquidité, qui font partie de secteur de la fabrication. De plus, les résultats portent essentiellement sur des divulgations à caractère non économiques. Finalement, le pays semble influencer la quantité d'information divulguée (Ho and Taylor, 2007). La plupart des études antérieures semblent converger à trouver une variable indépendante et en mesurer l'impact sur le niveau de divulgation sans égard aux trois dimensions du développement durable prises individuellement. Considérant cela, analyser

le contenu des rapports de développement durable, publiés par les entreprises canadiennes en fonction des trois dimensions du GRI, apparaît être une avenue intéressante.

Méthodologie

Cette étude tente de dresser le portrait du contenu des rapports de développement durable des grandes entreprises canadiennes. Pour ce faire, le contenu des rapports de développement durable de 2007 des entreprises incluses dans le TSX250 a été analysé. Au total, 26 rapports de développement durable ont été recensés et codifiés à l'aide de grilles d'analyse de contenu. La recherche se veut transversale du fait qu'elle n'a pas comme objectif de décrire les changements au fil du temps dans le contenu des rapports, mais bien de décrire le contenu à un moment précis. L'année financière 2007 des rapports a été déterminée en tenant compte du fait qu'à la date de formation de l'échantillon, les rapports de développement durable de l'exercice 2008 des entreprises canadiennes n'étaient pas encore tous disponibles.

Pour évaluer la nature de l'information contenue dans les rapports de développement durable, l'étude se sert de trois grilles d'évaluation, soit sociale, environnementale et économique. Pour les informations à caractère environnemental, la grille « Index assessing the quality of discretionary disclosures about environmental policies, performance and inputs » développée par Clarkson et al., (2008) a été utilisée. Ensuite, pour les informations sociales, la grille « Social disclosures rating based on GRI 2002 Guidelines » établie par Sutantoputra (2008), a été considérée et finalement, en l'absence d'une grille en lien avec le GRI pour le volet économie, une grille d'évaluation du contenu du volet économique basée sur le GRI version 3 fut développée. Présentée en annexe 1, celle-ci se présente sous le même format que celles des volets environnemental et social.

Les trois grilles divisent les divulgations d'information en deux catégories, soit les divulgations fortes et faibles. On considère les éléments d'information forts comme étant des éléments d'information qui sont soutenus par des preuves tangibles. Les éléments d'information faibles, quant à eux, sont des éléments d'information basés sur peu ou pas de preuves tangibles pouvant les appuyer. Les grilles regroupent ensuite les informations en sept catégories bien précises : la structure de gouvernance et la gestion des systèmes, la crédibilité, les indicateurs de performance, les dépenses engagées, la vision et les stratégies déclarées par l'entreprise, le profil et, finalement, les initiatives. Les quatre premières catégories énoncées se regroupent dans les divulgations considérées fortes et les trois dernières sont des divulgations considérées faibles. Pour chacune des catégories, un certain pointage a été attribué en fonction des éléments d'information divulgués par l'entreprise.

De façon plus spécifique, le système de codification pour le volet environnemental a déjà été construit et testé par Clarkson et al., (2008). Leur étude visait à examiner la relation entre la performance environnementale et l'étendue des divulgations environnementales des entreprises. La grille de codification qu'ils ont développée, à l'aide d'experts dans le domaine de l'environnement, suit de très près les lignes directrices du GRI 2002 (G2). Notons, que la grille de codification de Clarkson et al., (2008) accorde davantage d'importance aux éléments d'information qualifiés de forts par rapport à ceux qualifiés de faibles tels que l'indique la proportion de 79 éléments forts sur une possibilité totale de 95 éléments concernant la dimension environnementale des rapports de développement durable. Les 79 éléments qualifiés de forts sont subdivisés en quatre grandes catégories, soit A1 à A4 tandis que les éléments qualifiés de faibles sont divisés en trois catégories (A5 à A7). Cette catégorisation permet de regrouper les éléments similaires entre eux (tableau 1).

Tableau 1

Les sept catégories de la grille de codification de Clarkson et al., (2008)

Éléments forts		
	A1	Structure de gouvernance et système de gestion
	A2	Crédibilité
	A3	Indicateurs de performance environnementale
	A4	Montant dépensé pour l'environnement
Éléments faibles		
	A5	Vision et stratégie déclarées
	A6	Profil environnemental
	A7	Initiatives environnementales

Concernant le volet social, la grille de codification développée par Sutantoputra (2008) a été utilisée. Cette dernière a été développée avec le souci de se conformer à la grille de codification de Clarkson et al. (2008) (Sutantoputra, 2008). Cette seconde grille de codification comporte 83 éléments dont 67 sont dits forts répartis selon les sept mêmes grandes catégories que la grille de codification précédente. La principale différence entre ces deux grilles s'observe dans la catégorie 3 où Sutantoputra (2008) a développé des indicateurs de performance basés sur la performance sociale (SPI) plutôt qu'environnementale (EPI). C'est aussi ce qui explique la différence entre le nombre d'éléments. La grille de Sutantoputra offre 48 mesures de performance en comparaison de 60 pour celle de Clarkson et al., (2008).

À ce jour, aucune grille du même type que celles de Clarkson et al., (2008) et de Sutantoputra (2008) ne traite la dimension économique. Par conséquent, une grille de codification a été développée pour les fins de la présente analyse de contenu. Tout comme la grille de codification du volet social, la grille de codification du volet économique a été développée en se conformant aux principes qui sous-tendent la grille de codification du volet environnemental. Ainsi, chacune des dimensions du développement durable est mesurée selon les mêmes critères, ce qui permet la comparaison des différents volets. Malgré ce souci de comparabilité, il existe quelques différences entre cette grille et les précédentes. Premièrement, la section 3 a ses propres indicateurs de performances économiques (EcPI) comportant un maximum de 45 mesures. En second lieu, la section 4 concernant les montants dépensés pour l'économie a dû être supprimée en raison de la définition de la dimension économique et parce que les montants dépensés étaient aussi pris en compte dans les deux autres grilles. Finalement, le GRI 2006 (G3) a été utilisé pour développer les EcPI. Soulignons que le volet économique est beaucoup plus développé dans la version 2006 du GRI (G3) que dans celle de 2002 (G2). De plus, puisque l'année d'échantillonnage est 2007, la quasi-totalité des entreprises incluses dans l'échantillon qui reconnaissent utiliser le GRI le font selon le G3. Toutes ces modifications ont porté à 77 le nombre total d'éléments dans la grille de codification du volet économique. De ce nombre, 61 éléments sont qualifiés de forts. L'instrument de mesure est ainsi composé de ces trois grilles de codification.

À la lecture des rapports de développement durable, commentaires de figures, tableaux et notes de bas de pages compris, lorsqu'était rencontré un des éléments contenus dans l'instrument de mesure, l'inscription se faisait en apposant un 1 vis-à-vis cet élément. Le 1 ne signifie pas une fréquence, mais

bien la présence ou non (dans ce cas 0) de l'élément. Dans cette optique, il est impossible d'obtenir plus que 1 par élément, et ce, même si le rapport de développement durable contient plus d'une référence à ce même élément. Par exemple, une entreprise énumérant ses nombreuses donations à des organismes défendant l'environnement se voit octroyer 1 vis-à-vis l'élément donation relié à l'environnement. Un pointage par catégorie, par dimension et total était ensuite octroyé à chaque entreprise. Certaines autres caractéristiques pouvant permettre de tirer des conclusions ont de plus été notées, dont le nombre de pages, la langue utilisée dans le rapport, le secteur d'activité de la société et, si le rapport comportait l'assurance d'une tierce partie, le type d'auditeur ayant fourni cette assurance.

Résultats

Analyse descriptive de l'échantillon

L'échantillon a été établi à partir de l'analyse des sites Internet de l'ensemble des entreprises composant le TSX250. Cette analyse a permis de recenser 26 entreprises qui ont publié un rapport de développement en 2007. Cet échantillon est composé d'entreprises de divers secteurs industriels. Le secteur pétrolier et du gaz sont représentés par neuf entreprises, l'industrie minière par huit entreprises, les télécommunications, la finance et les produits chimiques ont chacun deux entreprises et finalement, l'échantillon est complété par trois autres entreprises de différents secteurs. De ces 26 rapports de développement durable, six ont été attestés par un tiers dont cinq par des firmes comptables et un seul par des consultants en environnement. Finalement, quatre des rapports étaient en français. Il est donc possible de conclure que l'échantillon est bien diversifié et représente une proportion importante des grandes entreprises inscrites à la Bourse de Toronto. De plus, bon nombre de ces rapports ont été récompensés au plan national.

Analyse des résultats

Le tableau 2 présente les pointages pour chacun des trois volets de la grille de codification. Tel que l'on peut l'observer, les volets environnemental et social semblent être davantage privilégiés par les entreprises que le volet économique. En effet, les médianes du nombre d'éléments relevés pour les volets environnemental et social sont 29,5 et 25,5 sur des possibilités de 95 et 83 respectivement. Le volet économique, quant à lui, présente une médiane de 15 éléments relevés sur un total possible de 77. Notons, par ailleurs, que globalement, les entreprises n'ont obtenu qu'un pointage médian de 70,5 éléments sur un total possible de 255, ce qui ne représente qu'un pourcentage de 27,64 % des éléments pouvant être abordés. De plus, on observe des écarts très importants entre le nombre minimal et maximal d'éléments pouvant être relevés dans chacun des volets. Des différences importantes semblent ainsi prendre place dans le contenu des rapports de développement durable publiés par les entreprises étudiées.

Tableau 2

Trois volets : nombre d'éléments relevés

	N	Minimum	Maximum	Médiane	
				Nombre	Pourcentage
Pointage total	26	10/255	153/255	70,5/255	27,64
Environnement	26	5/95	63/95	29,5/95	31,05
Social	26	2/83	54/83	25,5/83	30,72
Économique	26	0/77	43/77	15/77	19,48

Les tableaux 3, 4 et 5 présentent les détails des éléments relevés pour chacun des volets (environnemental, social et économique) en se référant aux sept catégories des grilles de codification. En ce qui concerne le volet environnemental (tableau 3), nous pouvons constater que les éléments qualifiés de forts sont en plus grand nombre que ceux qualifiés de faibles pour la plupart des entreprises étudiées. Toutefois, en termes de pourcentage, les résultats sont tout autres. Les entreprises divulguent un plus grand pourcentage d'éléments qualifiés de faibles (62,50 %) par rapport à ceux de qualifiés de forts (26,58 %). On remarque de plus que les éléments inclus dans toutes les catégories de la grille de codification (A1 à A7) sont divulgués par au moins une entreprise. En outre, la majorité des entreprises divulguent la totalité des éléments compris dans la catégorie A5, vision et stratégies environnementales et pas plus de la moitié des entreprises ne divulguent plus de 20,83 % du total des indicateurs de performance de la catégorie (A3).

Tableau 3

Volet environnemental : éléments relevés

	N	Minimum	Maximum	Médiane	
				Nombre	Pourcentage
Environnement – forts	26	2/79	67/79	21/79	26,582
A1	26	0/6	5/6	3/6	50,000
A2	26	0/10	9/10	5/10	50,000
A3	26	0/60	36/60	12,5/60	20,833
A4	26	0/3	3/3	1,5/3	50,000
Environnement – faibles	26	3/16	14/16	10/16	62,500
A5	26	1/6	6/6	6/6	100,000
A6	26	0/4	4/4	2/4	50,000
A7	26	1/6	5/6	2/6	33,333

Au regard du volet social, tel que présenté dans le tableau 4, les éléments des catégories (B1 à B7) sont aussi tous divulgués par au moins une entreprise, mais un certain laxisme apparaît là aussi en ce qui concerne les indicateurs de performances. La majorité des entreprises étudiées divulguent moins de 18 % des indicateurs performances recommandés par le GRI et pas plus de 33,33 % des éléments concernant les sommes dépensées par les entreprises ne sont divulgués.

Tableau 4

Volet social : éléments relevés

	N	Minimum	Maximum	Médiane	
					% vs max
Social – forts	26	1/67	41/67	16/67	23,881
B1	26	0/6	6/6	3/6	50,000
B2	26	0/10	9/10	5/10	50,000
B3	26	0/48	27/48	8,5/48	17,708
B4	26	0/3	2/3	1/3	33,333
Social – faibles	26	1/16	16/16	11/16	68,750
B5	26	1/6	6/6	5,5/6	91,666
B6	26	0/4	4/4	3/4	75,000
B7	26	1/6	6/6	4/6	66,666

Finalement, en analysant les divulgations se rapportant au volet économique (tableau 5), il appert qu'il y a un très petit nombre d'éléments divulgués. Les valeurs médianes en pourcentage sont en effet très faibles, et ce, pour toutes les catégories (C1 à C7 : C4 étant non applicable). Parmi les catégories qui se démarquent des autres, relevons la vision et les stratégies économiques déclarées (C5) avec une médiane de divulgation de 2 éléments sur une possibilité de 6 (33,33 %) ainsi que le profil économique (C6) avec une médiane de divulgation de 1 éléments sur 4 (25 %).

Tableau 5

Volet économique : éléments relevés

	N	Minimum	Maximum	Médiane	
					% vs max
Économique – forts	26	0/61	33/61	10/61	16,393
C1	26	0/6	5/6	0,5/6	8,333
C2	26	0/10	5/10	1/10	10,000
C3	26	0/45	27/45	8,5/45	18,888
Économique – faibles	26	0/16	10/16	3,5/16	21,875
C5	26	0/6	6/6	2/6	33,333
C6	26	0/4	3/4	1/4	25,000
C7	26	0/6	2/6	0,5/6	8,333

Enfin, dans un autre ordre d'idées, nous avons relevé les éléments divulgués les plus fréquemment par les entreprises étudiées, soit les éléments rencontrés dans au moins 20 des rapports de développement durable analysés (soit plus de 75 % de l'échantillon). Ces éléments sont les suivants :

- l'existence d'un département pour contrôler la pollution ou la description de la position de la direction vis-à-vis la gestion environnementale (A1);
- des données de performance de 2007 relativement aux gaz à effets de serre (GES) (A3);
- un énoncé concernant des politiques, valeurs, principes et codes de conduites environnementales (A5);
- un énoncé à propos d'un système de gestion formel des risques et de la performance environnementale (A5);
- un énoncé à propos d'objectifs mesurables concernant la performance environnementale (A5);
- un énoncé à propos d'innovations ou d'avancées technologiques dans le domaine de l'environnement (A5);
- un aperçu de l'impact environnemental de l'entreprise (A6);
- l'existence de conditions applicables à tous les employés et clients concernant les pratiques sociétales de la société (généralement la santé et sécurité) (B1);
- des données de performance de 2007 relativement à l'emploi (B3);
- des données de performance de 2007 relativement à la santé et sécurité (B3);
- des données de performance antérieure relativement à la santé et sécurité (B3);
- un énoncé du directeur général dans une lettre aux utilisateurs sur la performance sociale (B5);
- un énoncé concernant des politiques, valeurs, principes et codes de conduites sociales (B5);
- un énoncé à propos d'un système de gestion formel des risques et de la performance sociale (B5);
- un énoncé comme quoi la société examine périodiquement sa performance sociale (B5);
- un énoncé à propos d'innovations ou d'avancées sociales spécifiques (B5);
- une description substantielle de formation aux employés concernant le domaine social (généralement la santé et sécurité) (B7);
- une participation communautaire et/ou don en relation avec la société (B7);
- les montants d'investissements communautaires (incluant les dons) (C3).

Compte tenu de ces observations, il est possible de dégager quatre grandes tendances. Les systèmes de gestion des risques et les processus de diffusion de l'information occupent une place importante en réponse à la loi SOX, tel qu'explicitement cité dans certains rapports de développement durable. Les entreprises parlent de leurs « bons coups » telles leurs avancées technologiques, leurs innovations ou encore leurs différents dons. Certaines entreprises accordent une très grande importance (en termes de nombre de pages) à leurs dons et à leurs contributions communautaires. Une quantité importante d'éléments d'information concernant les GES et la santé et sécurité au travail a aussi été observée. Le premier sujet étant couvert d'une manière importante par les médias en fait une priorité publique, le second étant probablement lié au fait que l'échantillon contient une grande proportion d'entreprises opérant dans des secteurs d'activités comportant d'importants risques pour la santé et sécurité des travailleurs (c.-à-d. pétrole et gaz, minière, produits chimiques).

Pour conclure l'analyse des résultats, il a été possible de remarquer, à partir des résidus standardisés, que les entreprises du secteur du pétrole et du gaz semblent possiblement avoir tendance à faire auditer leurs rapports de développement durable par des firmes comptables plus souvent que les autres (tableau 6). Ces audits portent essentiellement sur les données quantitatives, tels que les indicateurs de performance. Il est probable que cet investissement soit fait pour donner une certaine crédibilité aux éléments d'information divulgués par ce secteur d'activités considéré comme étant l'un des plus polluants au Canada. Notons, par ailleurs, que le test de Chi² du tableau croisé était marginalement significatif à un seuil de 0,08.

Tableau 6

Relation entre le secteur d'activités et le type d'auditeurs

Type auditeurs		Secteur industriel			Total
		Pet & Gaz	Minières	Autres	
Aucun	Effectif	5	6	9	20
	Effectif théorique	6,9	6,2	6,9	20,0
	Résidu standardisé	-0,7	-0,1	0,8	
Firme comptable	Effectif	4	1	0	5
	Effectif théorique	1,7	1,5	1,7	5,0
	Résidu standardisé	1,7	-0,4	-1,3	
Spécialistes/consultants	Effectif	0	1	0	1
	Effectif théorique	0,3	0,3	0,3	1,0
	Résidu standardisé	-0,6	1,2	-0,6	
Total	Effectif	9	8	9	26
	Effectif théorique	9,0	8,0	9,0	26,0

Conclusion

Les rapports de développement durable canadiens ont fait l'objet de peu d'études jusqu'à maintenant. La présente étude vise à combler ce vide en analysant le contenu de ces derniers à lumière des recommandations de l'un des référentiels le plus souvent mis de l'avant sur la scène mondiale au regard des rapports de développement durable.

L'analyse du contenu des rapports de développement durable étudiés a permis d'observer que les entreprises canadiennes publiant de tels rapports sont davantage portés à divulguer des éléments d'information concernant les volets environnemental et social que le volet économique. Cette conclusion concorde avec d'autres études sur le sujet ayant également relevé que les divulgations à caractère économique passent bien souvent au second plan. Notons, de plus, que pour chacun des volets analysés, des écarts importants ont été observés quant à l'étendue des divulgations. En effet, le nombre d'éléments minimums recensés dans chacun des trois volets est bien souvent zéro tandis que le nombre maximal peut être relativement élevé. Ainsi, le contenu de ces rapports semble différer d'une manière importante d'une entreprise à l'autre. De plus, nous avons observé que les éléments qualifiés de faibles sont systématiquement plus souvent divulgués, toute proportion gardée eu égard au nombre total d'éléments, que ceux qualifiés de forts.

Somme toute, il a été possible de constater qu'il y a quatre grandes tendances qui émergent des rapports de développement durable canadiens. La grande majorité des entreprises divulguent des éléments d'information concernant leurs systèmes de gestion des risques et leurs processus de diffusion de l'information. Elles mettent bien souvent de l'avant leurs investissements dans la communauté et de leurs nombreux dons. Certains éléments d'information concernant les gaz à effet de serre ainsi que la santé et sécurité sont aussi bien souvent divulgués. En résumé, il semble donc que le contenu des divulgations soit

influencé par les différentes législations, par les préoccupations de la société en général et finalement, par la recherche d'une image de marque responsable.

Ces observations sont intéressantes, d'une part, pour les entreprises qui peuvent s'en servir comme référence au regard de leurs décisions concernant le contenu de leur rapport de développement durable. D'autre part, elles mettent en lumière les pratiques que certaines entreprises canadiennes adoptent volontairement pour communiquer à leurs parties prenantes leurs réalisations dans le domaine du développement durable. Ces pratiques peuvent ainsi constituer un point de départ intéressant pour toute initiative visant à normaliser le contenu de ce type de rapports. Les organismes de normalisation comptable ou encore les différentes instances gouvernementales peuvent, entre autres, y déceler les éléments d'information que les entreprises semblent volontairement vouloir divulguer ainsi que ceux présentant une plus grande résistance ou une moindre popularité.

Cette étude a contribué à l'avancement des connaissances dans le domaine du « reporting » en développement durable, mais elle n'est pas une finalité. Plusieurs avenues de recherche en découlent. Tout d'abord, il serait intéressant de vérifier si le fait de couvrir un bon nombre d'éléments dans chacun des trois volets est davantage perçu comme étant utile auprès des utilisateurs que la stratégie de divulgation adoptée par certaines entreprises qui consiste à relever un petit nombre d'aspects, mais plus en profondeur. Examiner s'il existe une relation causale entre le nombre d'années pour lequel l'entreprise a un rapport de développement durable et la qualité de ce dernier est aussi une avenue de recherche intéressante. Dans le même ordre d'idées, une étude longitudinale concernant le contenu des rapports de développement durable permettrait de déterminer si les tendances changent à travers les années et pourrait compléter la présente étude.

Notons que cette étude comporte certaines limites. Parmi celles-ci, relevons la portée des rapports qui en fait possiblement varier son contenu. En effet, certaines entreprises publient des rapports annuellement alors que d'autres le font sur des bases moins fréquentes; les réalisations de plus grande période de temps sont ainsi couvertes. Il est aussi difficile, voire, impossible de codifier les images, parfois nombreuses présentées dans les rapports de développement durable. Seuls les commentaires accompagnant les images et les tableaux ont pu être analysés à partir des grilles de codification. Enfin, les références aux sites Internet des entreprises pour de plus amples renseignements limitent également le nombre d'éléments mesurables, ce qui ne rend pas compte de toute l'ampleur des divulgations effectuées par les entreprises.

Annexe 1 : Grille de codification du volet économique

Divulgations d'éléments d'information forts (pointage maximum 61)

Structure de gouvernance et système de gestion (pointage maximum de 6)

1. Existence d'un département ou de position d'administration pour tenir compte des impacts des entreprises économiques
2. Existence d'un comité à l'intérieur de l'entreprise s'occupant des questions économiques et/ou publiques
3. Existence de termes et conditions applicables aux employés et aux clients concernant les entreprises économiques
4. L'implication des parties prenantes dans l'établissement des politiques économiques des entreprises
5. Implantation des normes du commerce équitable
6. La rémunération des dirigeants est liée à la performance économique

Crédibilité (pointage maximum de 10)

1. L'entreprise reconnaît l'usage du GRI
2. La vérification indépendante/assurance quant à l'information économique divulguée dans le rapport de durabilité
3. Vérifications indépendantes/audits périodiques sur les performances économiques et/ou sur les systèmes
4. Certification de programmes économiques par des organismes indépendants
5. Certification des produits relativement au commerce équitable
6. Récompenses extérieures pour leur performance économique
7. Implication des parties prenantes dans le processus de divulgation économique
8. Participation volontaire à des initiatives de commerce équitable approuvé par la FLO
9. Participation dans des associations ou des initiatives spécifiques de l'industrie visant à améliorer les pratiques économiques
10. Participation dans d'autres organisations ou d'autres associations économiques en vue d'améliorer les pratiques économiques

Indicateurs de performance économique (pointage maximum de 45)

Valeur économique directe créée

1. Produits : Ventes nettes plus produits financiers et produits des cessions d'actifs
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Valeur économique distribuée

2. Coûts opérationnels : Versements aux fournisseurs, placements non stratégiques, redevances et gratifications
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
3. Rémunération des salariés et avantages afférents : Sorties de fonds à l'attention des salariés (paiements courants sans tenir compte des engagements futurs)
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
4. Versements aux apporteurs de capitaux : Ensemble des versements financiers à l'attention des apporteurs des capitaux de l'organisation
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
5. Versements au gouvernement (par pays) : Impôts et taxes bruts
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
6. Investissements pour la communauté : Contribution volontaire et fonds investis dans la communauté au sens large (y compris les donations)
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Valeur économique non répartie (= valeur économique créée - valeur économique distribuée)

7. Placement, réévaluation en fonds propre, etc.
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Informations financières

8. Implications financières et autres risques et opportunités pour les activités de l'organisation liés aux changements climatiques
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
9. Étendue de la couverture des retraites avec des plans de retraite à prestations définies
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
10. Subventions et aides publiques significatives reçues
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Présence sur le marché

11. Distribution des ratios comparant le salaire d'entrée de base et le salaire minimum local sur les principaux sites opérationnels
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
12. Politique, pratiques et part des dépenses réalisées avec les fournisseurs locaux sur les principaux sites opérationnels
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
13. Procédure d'embauche locale et proportion de cadres dirigeants embauchés localement sur les principaux sites opérationnels
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Impacts économiques indirects

14. Développement et impact des investissements en matière d'infrastructures et des services, principalement publics, réalisés via une prestation commerciale, en nature ou à titre gratuit
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs
15. Compréhension et description des impacts économiques indirects significatifs, y compris l'importance de ces impacts
 1. Information présentée
 2. Les informations des périodes antérieures sont mentionnées
 3. Les futurs objectifs

Divulgations d'éléments d'information faibles (pointage maximum de 16)

Vision et les stratégies déclarées (pointage maximum 6)

1. Une déclaration du chef de la direction sur les performances économiques dans une lettre destinée aux actionnaires et/ou parties prenantes
2. Une déclaration sur les politiques économiques de l'entreprise, les valeurs et les principes et leur code de conduite en matière d'économie
3. Une déclaration sur les systèmes de gestion concernant les risques économiques et la performance économique
4. Une déclaration qui informe que l'entreprise s'engage à réviser périodiquement et à faire des évaluations de ses performances économiques
5. Une déclaration d'objectifs mesurables en terme de performance économique future
6. Une déclaration à propos des innovations et des améliorations économiques spécifiques

Profil économique (pointage maximum 4)

1. Un rapport sur l'entreprise à propos de la conformité (ou l'absence de) en lien avec des normes économiques spécifiques
2. Une présentation des impacts économiques de l'industrie
3. Une présentation de la façon dont les opérations commerciales et/ou les produits et les services effectuent l'économie
4. Une présentation de la performance économique de l'entreprise par rapport aux entreprises du même secteur d'activités

Initiatives économiques (pointage maximum 6)

1. Une description de la formation des employés pour la gestion ou les opérations économiques
2. Existence de plans en cas d'incidents économiques
3. Récompenses économiques à l'interne
4. Audits économiques à l'interne
5. Certification interne pour des programmes économiques
6. La participation communautaire et/ou donations liées à l'économie

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DIFFERENTIAL MARKET PRICING OF COMPONENTS OF ACCOUNTING RATE OF RETURN ON COMMON SHAREHOLDERS' EQUITY

Accounting or book rate of return on common shareholders' equity is often disaggregated into profit margin, asset turnover, and financial leverage in financial statement analysis. Our paper investigates and finds that capital markets price these components differently; in particular, capital markets assign very significant value to the profit margin component.

Introduction

Empirical research in accounting and finance on the value relevance of accounting numbers is plentiful. Accounting earnings (mainly, earnings per share) and its relationship to stock prices has received the most attention in this research effort (Lev, 1989) initiated in Ball and Brown (1968). Newer research efforts, starting in the 1990s, have been directed to market pricing of not only different components of accounting earnings (for example, transitory and permanent components in Hayn (1995) and discretionary and nondiscretionary components in Sloan (1996)) but other accounting numbers such as book value of equity in Penman (1991) and book value of assets and liabilities in Barth et al (1993).

Our paper follows the newer trend in empirical research which takes a broader perspective on market pricing of accounting numbers by incorporating both income statement variables and balance sheet variables.¹ We accomplish this goal by investigating the existence of differential market pricing of three components of accounting or book rate of return, namely profit margin, asset turnover, and financial leverage.² Accounting or book rate of return (in contrast to market rate of return) is defined as the ratio of net income available to common

¹ This broader perspective is described in Beaver (1998) and Scott (2006) as the measurement perspective in contrast to the information perspective which traditionally has examined only earnings.

² This is the familiar DuPont approach to disaggregating the accounting / book rate of return. Variations of this approach have been suggested, for example, in Selling & Stickney (1990) and Penman (2010).

shareholders to book value of common shareholders' equity reported on the balance sheet. We shall refer to this as return on common shareholders' equity, ROCE.

Our paper makes significant contributions to the literature in three broad areas. First, non-disaggregated ROCE is an important accounting variable in its own right because it is a more comprehensive measure of performance than earnings which has been the major focus of empirical studies in the past. It includes an income statement dimension (earnings) as well as a balance sheet dimension (common shareholders' equity). ROCE measures both profitability and risk, that is, cost of capital. Second, empirical evidence on market pricing of non-disaggregated ROCE is relatively scarce. Finally, if evidence on market pricing of non-disaggregated ROCE can be described as scarce, empirical evidence on market pricing of the disaggregated components can be described as "a rarity" in accounting and finance research (Nissim & Penman, 2001). The apparent lack of more research interest and effort in the disaggregated components of ROCE is puzzling because it continues to be a very popular topic in accounting and finance textbooks. In addition, the disaggregated components have strategic interpretations. Specifically, the strategic thrust of a firm could be maximization of either profit margin or asset turnover or financial leverage, depending on the firm's economic environment such as extent of competition and industry type (Selling & Stickney, 1989). Because of their strategic dimensions, our paper takes the view that the separate components are unlikely to be assigned the same value (weight or importance in terms of pricing) by either a firm's management or the capital market.

The results of our investigation are mixed. Profit margin was priced about six times more than both asset turnover and financial leverage at the portfolio level during the study period 1969 to 2004. However, market pricing of asset turnover and financial leverage was almost the same. The rest of the paper is presented in the following sequence: literature review and hypothesis development, data and methodology, empirical results, and conclusion.

Literature Review and Hypothesis Development

The first part of the review will cover the definition of ROCE, its disaggregated components, the theories relating ROCE (and its disaggregated components) to the market value of a firm's common shares, and empirical evidence on the relationships. The second part of the review presents some testable hypotheses that relate each of the disaggregated components of ROCE to market value of common shares.

ROCE is defined as the ratio of a firm's income available to its common shareholders (that is, net income less preferred dividends) to the book value of the common shareholders' equity. In standard financial statement analysis, this ratio is usually interpreted as only a measure of profitability. However, in its basic disaggregated form below, ROCE also measures risk:

$$\begin{aligned}
\text{ROCE} &= \text{net income available to common (income)} \div \text{common shareholders' equity} \\
&\quad (\text{equity}) \\
&= (\text{income} \div \text{sales}) \times (\text{sales} \div \text{assets}) \times (\text{assets} \div \text{equity}) \\
&= \text{margin} \times \text{turnover} \times \text{leverage}
\end{aligned} \tag{1}$$

Total assets and common shareholders' equity are defined as averages to be consistent with the income number. The book (financial) leverage component of ROCE (total assets divided by book value of common equity) is a measure of risk while both margin and turnover components measure profitability.

Different versions of ROCE disaggregation have been suggested. These are, however, essentially refinements to Equation (1). For example, Selling & Stickney (1990) defines income as operating income (net income available to all providers of capital, independent of sources of financing) in an effort to separate the effects of operating decisions and financing decisions on ROCE. Penman (2010) also defines income as operating income but, in addition, separates operating assets from financial assets and defines leverage to capture the spread between return on the operating assets and net borrowing cost. Some of these refinements are very difficult to implement in an empirical study. The basic approach in Equation (1) is used in this study.

Ohlson (1990 & 1995) and Feltham & Ohlson (1995) are the only published papers that rigorously develop a direct theoretical relationship between market value of a firm's common shares and its ROCE. Starting with the standard dividend valuation model (Equation (2a)) and using clean surplus accounting relationship (Equation (2b)) the papers derive the residual income valuation model (Equation (2c)) as follows:

$$V_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + ROCE)^t} \tag{2a}$$

$$= \sum_{t=1}^{\infty} \frac{NI_t + BV_{t-1} - BV_t}{(1 + ROCE)^t} \tag{2b}$$

$$= BV_0 + \sum_{t=1}^{\infty} \frac{NI_t - (ROCE \times BV_{t-1})}{(1 + ROCE)^t} \tag{2c}$$

V_0 is the market value of the common shareholders' equity at time 0, defined initially as the sum of the present value of all expected future dividends, D . Consistent with clean surplus accounting in Equation (2a), dividends include all capital transactions between the firm and its shareholders such as cash and stock dividends, share repurchases and issues. In addition, net income (NI) is comprehensive income and therefore includes both realized and unrealized gains and losses. BV

is the book value of common shareholders' equity. The second term in the residual income valuation model (Equation 2c) is the present value ($t = 0$) of all expected future residual incomes, defined as the excess of each expected future net income over the required net income (product of beginning book value of common shareholders' equity and expected ROCE). This is the expected residual income and captures values that are *not* reflected in the book value of common shareholders' equity. The amount is usually either a premium or discount resulting from biased accounting. In the version of the residual income valuation model presented in Equation (2c), expected future ROCE serves dual roles: determination of required net income (profitability) and the discount rate or cost of capital (risk).

Another form of the residual income valuation model is the Price-to-Book (P/B) ratio:

$$\frac{V_0}{BV_0} = 1 + \frac{RI}{BV_0} \quad (3)$$

Equation (3) is standardization of the residual income valuation model in Equation (2(c)) by beginning book value of common shareholders' equity, BV_0 . RI is the present value of the expected residual incomes. V_0 is assumed to be equal to the market price, P_0 , in the P/B ratio formulation.

The P/B ratio formulation has been used to test the residual income valuation model. Penman (2010, Figure 5.1), using S&Ps Compustat data for all NYSE and AMEX firms grouped into 20 portfolios on the basis of their P/B ratios from 1965 to 1995, validates the model. That is, on average, high P/B ratio firms produce high future residual incomes while low P/B ratio firms produce low future residual incomes. Similarly, the few firms with P/B ratio close to 1 also produce future residual incomes close to zero. Penman (2010, Figure 5.2) also demonstrates a positive relationship between ROCE and P/B ratio by plotting 2002 ROCE for the S&P 500 firms on their P/B ratios at the end of 2001.

Board and Walker (1990) reported positive correlations between unexpected ROCEs and abnormal (unexpected) returns on common stocks over an 18 year-period from 1965 to 1982. The authors observed significant variations in these correlations across time which they attributed, in part, to inflation. Using the same database (Compustat and CRSP) but a different research design (notably, not removing market/economy-wide effects from either the accounting rates of return ($ROCE_{it}$) or market rates of returns (R_{it}), Penman (1991) reported an average R^2 of about 9 percent (range of 2% to 19%) of the ROCE variable in the following linear regression:

$$R_{it} = \lambda_1 + \lambda_2 ROCE_{it} + W_{it} \quad (4)$$

W_{it} is the error term and λ_1 and λ_2 are the regression coefficients. The study covered an 18-year period from 1969 to 1986 involving 35,978 observations, that is, an average of 1999 firms per year.³

As indicated earlier, there are three basic drivers of accounting rate of return (and therefore market rate of return): profit margin, asset turnover, and financial leverage. None of the very few and major published empirical studies which have examined the relationship between accounting and market rates of return has found it necessary to investigate the possibility that each of these drivers may impact differently on the market value of the common shares of firms. The drivers tend to differ across firms because they tend to adopt different strategies that give rise to economic differences. These economic differences are reflected in profit margins, asset turnover and financial leverage. For example, a firm pursuing a low-cost leadership competitive strategy can still maintain an overall decent level of profitability (that is, return on assets: product of profit margin and asset turnover) by offering lowest prices (and therefore lower profit margins) to achieve the highest sales volume (asset turnover). On the other hand, another firm pursuing a differentiation strategy can achieve the same decent level of overall profitability by maintaining very attractive profit margins on very limited sales volume, that is, lower asset turnover (Selling & Stickney (1989), Hall (1980), and Porter (1980)). The strategic focus of a low-cost leadership firm is maximization of asset turnover for a given level of profit margin while that of a differentiation firm is maximization of profit margin for a given level of asset turnover.

The research hypotheses follow directly from the disaggregated model of ROCE and the established theoretical relationship between ROCE and market value of common shares of firms. We use the following linear model (similar to the one used in Penman (1991)) with three separate independent variables:

$$R_{jt} = \gamma_0 + \gamma_1 (M_{jt} / \sigma_{Mt}) + \gamma_2 (T_{jt} / \sigma_{Tt}) + \gamma_3 (L_{jt} / \sigma_{Lt}) + e_{jt} \quad (5a)$$

R_{jt} is the annual market return on the common shares of firm j ; M_{jt} , T_{jt} , and L_{jt} are the annual profit margin, asset turnover, and financial leverage for firm j , respectively; γ_0 , γ_1 , γ_2 , and γ_3 are the regression coefficients and e is the error term. σ_{Mt} , σ_{Tt} , and σ_{Lt} are cross-sectional standard deviations of profit margin (M), asset turnover (T), and financial leverage (L), respectively. We deflate margin, turnover, and leverage by the corresponding cross-sectional standard deviation permits to permit comparison of the regression coefficients in terms of their relative importance in market pricing. It is also consistent with the interpretation of a capital market that rewards firms for assuming risk, in this case, measured by cross-sectional standard deviations.⁴

³ Our paper also does not remove economy or market-wide effects from either the accounting or market rates of returns.

⁴ We assume that these are equivalent to systematic risk.

There are two testable hypotheses. Firstly, all the three regression coefficients, namely γ_1 , γ_2 , and γ_3 , are positive and statistically significant. This follows directly from the disaggregated ROCE model. Secondly, the three regression coefficients, each of which measures the relative magnitude of the associated variable, are different from each other. That is, we would expect the market to price each of the variables differently. This is consistent with the strategy literature.

A priori, we would expect the coefficients of both the profit margin variable and the asset turnover variable to be greater than that of the financial leverage variable. The premise here is that financial leverage is *not* advantageous to a firm unless it carries on profitable operations in the form of either greater profit margin and/or asset turnover. A priori, our position regarding profit margin and asset turnover is neutral. That is, we would expect the strength of the coefficients to be about equal. The relative strength of each would depend on the extent of competition in the marketplace. If the market has been highly competitive over the study period one would expect the asset turnover variable to be the greater of the two and vice-versa for the profit margin variable in less competitive market.

Data and Methodology

The study covers the 36-year period 1969 to 2004 and uses annual financial statements data from COMPUSTAT and price and returns data from CRSP. Although the focus of our study is the disaggregated form of ROCE, we first estimated the regression coefficients for the following aggregate model:

$$R_{jt} = \alpha_0 + \alpha_1 (ROCE_{jt} / \sigma_{Rt}) + e_{jt} \quad (6)$$

R_{jt} and $ROCE_{jt}$ are annual market and accounting rates of return for firm j , respectively. σ_{Rt} is the cross-sectional standard deviation of the accounting rate of return for the period and e is the error term. This estimation was performed for completeness and limited comparison with the results reported in Penman (1991). For each of the years 1969 to 2004, the coefficients in the cross-sectional Equation 6 were estimated using firms that had available both the financial statement data for calculating the accounting rates of return and its disaggregated components and the market price/returns data. The average number of firms for each year was 3,638 (a total of 130,968 observations). The estimation process was repeated at the portfolio level where firms were put into one of the 100 ROCE-sorted percentile portfolios.

The second cross-sectional regression model for testing the two main hypotheses of the study is given in Equation (5b) as follows:

$$R_{jt} = \gamma_0 + \gamma_1 (M_{jt}/\sigma_{Mt}) + \gamma_2 (T_{jt}/\sigma_{Tt}) + \gamma_3 (L_{jt}/\sigma_{Lt}) + e_{jt} \quad (5b)$$

The same cross-sectional regression procedure used in estimating the parameters in Equation (6) were used in Equation (5b) with one exception. The firms were put in one of 125 portfolios instead of 100. The portfolios were formed from independent sort of the firms into five quintile portfolios for each of the three independent variables.

Empirical Results

The results of the aggregate model where ROCE is the only independent variable are reported in Table 1. At the individual security level of analysis (Table 1, Panel A), ROCE explains only a very small but statistically significant portion of the total variation in the market rates of return on the common shares. The mean R^2 is only 4.46% and a range of 10.59% (1970) to 0.04% (2003). These numbers are much less than those reported in Penman (1991), a mean R^2 of 9% and a range of 2% to 19%. Although not reported here, the mean R^2 has apparently been declining over time: 5.67% from 1969 to 1987 and 3.25% from 1988 to 2004. The market rate of return for one unit of standard deviation of ROCE is 10.4% (α_1 in Equation (6), coefficient of ROCE) during the period. Still looking at the aggregate model but portfolio level of analysis (Table 1, Panel B), we observe a significant improvement in the mean R^2 from 4.46% to 59.35%. This improvement is more likely due to the reduction in noise by forming portfolios. The portfolio market rate of return for one unit of standard deviation of portfolio ROCE is 11.1%, just a little more than the 10.4% for the individual security level of analysis.

The results of the disaggregated model, the focus of the study, are presented in Table 2. We observe mean R^2 of only 1.93% at the individual security level of analysis (Panel A, Table 2) compared to 4.46% for the aggregate model. Each of the coefficients is, however, positive, different, and statistically significant as hypothesized. The market rates of return for one unit of standard deviation of profit margin, asset turnover, and financial leverage averaged 4.0%, 3.1%, and 1.0%, respectively. Apparently, common stocks with greater profit margin volatility also received greater market reward in comparison to both asset turnover volatility and financial leverage volatility. One obvious implication for optimal portfolio formation or strategy is maximization of profit margin volatility, other things equal.

The results of the portfolio level analysis of the disaggregated model (Table 2, Panel B) are consistent with those observed at the individual security level analysis: lower mean R^2 (21.54% compared to 59.35%) but positive and statistically significant coefficients as hypothesized. The portfolio market rates of return for one unit of standard deviation of portfolio profit margin, asset turnover, and financial leverage averaged 26.4%, 4.0%, and 4.2%, respectively. The market reward for portfolio profit margin volatility is much greater while

Table 1. The Relationship between Stock Return and Return on Equity

The table reports the estimates of the following cross-sectional regression from 1969 to 2004:

$$R_{jt} = \alpha_0 + \alpha_1 (ROCE_{jt} / \sigma_{Rt}) + e_{jt} \quad (i) \quad j=1, \dots, N$$

where R_{jt} is the return of security j at time t , $ROCE_{jt}$ is the firm accounting rate of return (net income divided by book value of equity), σ_{Rt} is the cross-sectional standard deviation of the accounting rate of return at time t , α_0 and α_1 are the regression parameters, and e is the error term. Panel A shows the results when stocks are used ($j = i$) while Panel B shows the results when 100 portfolios are used ($j = p$). The portfolios are formed each year by placing each stock into one of the 100 ROCE-sorted percentile portfolios, and taking the median values of the variables within the portfolios as regressors and regressand.

Panel A. Cross-sectional regression using individual stocks

Year	α_0	α_1	R^2 (%)	N	Year	α_0	α_1	R^2 (%)	N
1969	-0.329	0.099	6.23	2009	1988	0.081	0.114	5.04	3506
1970	-0.238	0.103	10.59	2162	1989	0.120	0.137	6.21	3553
1971	0.041	0.124	7.99	2576	1990	-0.141	0.121	6.25	3540
1972	-0.048	0.106	6.21	2851	1991	0.250	0.126	3.04	3529
1973	-0.354	0.066	3.16	2931	1992	0.187	0.086	1.70	3659
1974	-0.382	0.103	9.15	3011	1993	0.191	0.084	1.70	3769
1975	0.336	0.138	3.97	3101	1994	-0.022	0.085	2.86	3996
1976	0.322	0.126	4.87	3144	1995	0.162	0.088	2.04	4256
1977	0.079	0.102	4.55	3308	1996	0.115	0.113	3.69	4631
1978	0.037	0.090	4.09	3262	1997	0.122	0.128	4.84	4860
1979	0.151	0.120	4.38	3241	1998	-0.057	0.106	3.38	5138
1980	0.148	0.154	6.68	3344	1999	0.169	0.047	0.35	5044
1981	-0.044	0.076	2.46	3330	2000	-0.005	0.119	2.93	4513
1982	0.099	0.137	6.33	3456	2001	0.105	0.120	3.34	4537
1983	0.225	0.089	2.40	3517	2002	-0.044	0.154	6.46	4491
1984	-0.093	0.104	5.55	3412	2003	0.560	-0.017	0.04	4433
1985	0.090	0.131	7.22	3396	2004	0.249	0.074	1.39	4706
1986	0.033	0.124	6.91	3382	Mean	0.056	0.104	4.46	3638
1987	-0.084	0.073	2.48	3370	t-statistic	1.734	19.382		

Table 1. Continued

Panel B. Cross-sectional regression using portfolios									
Year	α_0	α_1	R ² (%)	N	Year	α_0	α_1	R ² (%)	N
1969	-0.387	0.101	52.00	100	1988	0.018	0.119	73.45	100
1970	-0.244	0.112	53.72	100	1989	0.025	0.157	80.98	100
1971	-0.015	0.119	64.67	100	1990	-0.218	0.151	74.70	100
1972	-0.075	0.092	62.58	100	1991	0.102	0.132	63.54	100
1973	-0.401	0.060	30.39	100	1992	0.041	0.097	65.30	100
1974	-0.406	0.088	64.97	100	1993	0.069	0.069	42.77	100
1975	0.271	0.119	39.94	100	1994	-0.107	0.087	64.80	100
1976	0.240	0.099	52.84	100	1995	0.044	0.110	57.42	100
1977	0.007	0.097	58.73	100	1996	0.013	0.118	65.15	100
1978	-0.063	0.103	67.30	100	1997	0.031	0.139	66.13	100
1979	0.017	0.135	70.23	100	1998	-0.164	0.128	69.21	100
1980	0.026	0.151	73.69	100	1999	-0.053	0.061	34.95	100
1981	-0.101	0.082	37.57	100	2000	-0.163	0.149	63.09	100
1982	0.032	0.140	62.76	100	2001	-0.034	0.132	69.85	100
1983	0.135	0.082	49.28	100	2002	-0.166	0.166	76.93	100
1984	-0.150	0.117	67.33	100	2003	0.360	0.004	0.10	100
1985	0.041	0.140	75.05	100	2004	0.111	0.091	63.01	100
1986	-0.023	0.137	69.42	100	Mean	-0.037	0.111	59.35	100
1987	-0.159	0.097	52.77	100	t-statistic	-1.322	20.269		

Table 2. The Relationship between Stock Return, and Margin, Turnover, and Leverage

The table reports the estimates of the following cross-sectional regression from 1969 to 2004:

$$R_{jt} = \gamma_0 + \gamma_1(M_{jt}/\sigma_{Mt}) + \gamma_2(T_{jt}/\sigma_{Tt}) + \gamma_3(L_{jt}/\sigma_{Lt}) + e_{jt}, \quad j = 1, \dots, N \quad (\text{ii})$$

where R_{jt} is the return of security j at time t , M_{jt} is the firm's accounting profit margin (net income divided by total sales), T_{jt} is the firm's asset turnover ratio (total sales divided by total assets), L_{jt} is the firm's financial leverage ratio (total assets divided by book value of equity), σ_{Mt} , σ_{Tt} , and σ_{Lt} are the respective the cross-sectional standard deviation of M, T, and L at time t , γ_0 to γ_3 are the regression parameters, and e is the error term. Panel A show the results when individual securities are used ($j = i$) while Panel B shows the results when 125 portfolios are used ($j = p$). The portfolios are formed from independent sort of firms' margin, turnover, and leverage into one of the quintile portfolios, and taking the median values of the variables within these portfolios.

Panel A. Cross-sectional regression using individual securities

Year	γ_0	γ_1	γ_2	γ_3	R^2 (%)	Year	γ_0	γ_1	γ_2	γ_3	R^2 (%)
1969	-0.290	0.052	0.052	-0.012	2.86	1988	0.060	0.039	0.020	0.031	1.19
1970	-0.121	0.076	-0.019	-0.015	6.97	1989	0.176	0.055	0.007	-0.006	1.05
1971	-0.046	0.062	0.076	0.019	3.70	1990	-0.086	0.033	0.012	-0.023	0.79
1972	-0.045	0.082	0.034	-0.007	3.48	1991	0.285	0.026	0.020	-0.022	0.33
1973	-0.273	0.075	-0.016	-0.016	5.17	1992	0.045	0.011	0.093	0.016	2.09
1974	-0.331	0.054	0.029	-0.014	3.10	1993	0.119	0.019	0.016	0.058	1.00
1975	0.260	0.046	0.068	0.033	1.31	1994	-0.033	0.024	0.024	0.011	0.56
1976	0.236	0.047	0.083	0.033	2.38	1995	0.226	0.013	-0.007	-0.006	0.06
1977	0.025	0.025	0.032	0.064	2.00	1996	0.131	0.018	0.020	0.002	0.25
1978	0.033	0.028	0.027	0.031	0.93	1997	0.029	0.040	0.047	0.053	2.17
1979	0.241	0.071	-0.012	0.018	1.75	1998	-0.109	0.028	0.059	-0.001	1.46
1980	0.219	0.054	0.022	0.009	0.82	1999	0.364	0.017	-0.055	-0.066	1.17
1981	-0.138	0.031	0.058	0.029	1.83	2000	0.104	0.039	-0.037	-0.004	0.51
1982	0.027	0.055	0.085	0.001	3.56	2001	0.003	0.047	0.076	0.012	2.26
1983	0.053	0.028	0.085	0.050	3.13	2002	-0.124	0.068	0.074	0.008	3.38
1984	-0.150	0.042	0.051	0.024	2.71	2003	0.600	-0.026	-0.026	-0.007	0.24
1985	0.097	0.050	0.025	0.007	1.46	2004	0.176	0.013	0.049	0.026	0.89
1986	0.013	0.061	0.032	0.011	2.40	Mean	0.047	0.040	0.031	0.010	1.93
1987	-0.092	0.021	0.022	0.002	0.49	t-statistic	1.473	10.522	5.074	2.258	

Table 2. Continued

Panel B. Cross-sectional regression using portfolios											
Year	γ_0	γ_1	γ_2	γ_3	R ² (%)	Year	γ_0	γ_1	γ_2	γ_3	R ² (%)
1969	-0.371	0.140	0.036	-0.016	16.24	1988	-0.081	0.368	0.029	0.059	18.15
1970	-0.276	0.267	0.034	-0.040	24.75	1989	0.015	0.444	-0.014	0.063	34.49
1971	-0.273	0.151	0.110	0.086	34.27	1990	-0.164	0.344	0.005	-0.030	33.45
1972	-0.186	0.153	0.048	0.020	19.23	1991	0.050	0.376	0.017	0.041	24.06
1973	-0.542	0.186	0.018	0.041	26.40	1992	-0.040	0.139	0.053	0.024	17.02
1974	-0.565	0.152	0.084	0.034	17.55	1993	0.067	0.232	-0.044	0.084	10.94
1975	0.061	0.189	0.100	0.043	14.50	1994	-0.094	0.246	-0.005	0.018	23.28
1976	-0.278	0.222	0.196	0.163	21.26	1995	0.057	0.538	0.007	0.010	9.78
1977	-0.146	0.183	0.058	0.080	9.95	1996	-0.006	0.409	0.002	0.020	24.00
1978	-0.060	0.114	0.015	0.043	10.14	1997	-0.172	0.460	0.062	0.101	33.54
1979	0.203	0.108	-0.050	0.048	9.02	1998	-0.329	0.346	0.073	0.055	24.12
1980	-0.103	0.195	0.053	0.097	22.23	1999	0.154	0.238	-0.056	-0.081	12.41
1981	-0.473	0.129	0.127	0.125	20.79	2000	-0.098	0.409	-0.049	0.021	26.91
1982	-0.383	0.254	0.216	0.113	23.82	2001	-0.021	0.407	0.031	-0.026	25.74
1983	-0.100	0.115	0.071	0.105	16.90	2002	-0.220	0.409	0.046	0.020	43.79
1984	-0.276	0.250	0.039	0.058	28.13	2003	0.458	-0.014	-0.038	-0.029	4.56
1985	-0.068	0.407	0.019	0.095	25.93	2004	0.003	0.357	0.082	0.038	15.75
1986	-0.132	0.321	0.027	0.051	30.73	Mean	-0.126	0.264	0.040	0.042	21.54
1987	-0.160	0.274	0.020	-0.004	21.57	t-statistic	-3.654	12.558	3.920	4.956	

market rewards for portfolio asset turnover volatility and financial leverage volatility are about the same. Mean R^2 of the disaggregated model is much less than that of the aggregate model both at the individual security and portfolio levels of analysis. One potential explanation is increased measurement errors that are associated with the use of three independent variables in the disaggregated model (margin, turnover, and leverage) instead of only ROCE in the aggregated model.

Conclusion

This study investigated existence of differential market pricing of three components of accounting / book rate of return, namely profit margin, asset turnover, and financial leverage. The motivation behind the study included renewed interest in fundamental analysis and in the measurement perspective (in contrast to information perspective) in theoretical and empirical research, the strategy literature, and apparent lack of empirical evidence in the topical area of the study. Our results support our main hypothesis of differential pricing. Over the 36-year study period of 1969 to 2004, we found that volatility in profit margin was priced much higher than volatility in both asset turnover and financial leverage by the capital market whether the analysis was performed using individual securities or portfolios. Volatility in asset turnover was found to be priced higher than volatility in financial leverage when individual securities were analyzed but about the same when portfolios were analyzed.

The residual income valuation model provided the linkage between accounting / book rate of return (and therefore its three disaggregated components) and market rate of return. The major limitation of our study is our failure to fully implement clean surplus accounting which is the major building block for the residual income valuation model. For example, it was *not* possible to use comprehensive income in the calculation of accounting / book rate of return and profit margin. Firms were *not* required to report comprehensive income for most of the study period.

Although the strategy literature provided important ideas for the development of our hypotheses, the study did *not* directly test some of the implications. For example, our results are valid for only an *average* firm or portfolio. They therefore fail to capture differences across firms in terms of differences in their strategic thrusts and therefore differences in profit margin, asset turnover, financial leverage, and market pricing. This is fertile area for future studies.

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THE BALANCED SCORECARD AS A STAKEHOLDER REPORT FOR PUBLIC SECTOR AGENCIES

This paper explores a Canadian public sector agency's employment of Kaplan and Norton's (1992) Balanced Scorecard (BSC) to provide progress reports on achievement of its strategic plan. This research contributes to the BSC literature by expanding the framework to include stakeholder involvement in developing the strategic plan and related targets and to improve dissemination of the report.

Introduction

The purpose of this paper is to explore a Canadian public sector agency's employment of Kaplan and Norton's (1992) Balanced Scorecard (BSC) to provide stakeholders with progress reports on the achievement of its strategic plan. This exploratory study compares the agency's BSC to Kaplan and Norton's (1992) original commercial scorecard and then to Kaplan's (2001) modified NPGO scorecard. Since the agency's BSC was based on its strategic plan, the paper also examines stakeholders' level of satisfaction with the strategic plan and its measures as well as the consultative approach taken by the agency in developing the plan. Finally, the study explores stakeholders' awareness of the strategic plan.

It is important to study utilization of the BSC in a public sector context since many organizations rely on it as their main reporting tool. Therefore, it is beneficial to evaluate how well this particular tool meets stakeholder accountability needs. This exploratory case study contributes to the body of literature on public sector stakeholder reporting by examining the implications of using the BSC as the chief reporting mechanism for public sector agencies. The paper further contributes to the literature through its extension of the BSC framework.

The Balanced Scorecard and Stakeholder Reporting

The BSC is described by Talbot (1999) as a holistic approach to accounting for organizational performance since it encompasses several management initiatives: total quality management, just-in-time, lean production, customer focus, activity based costing, employee empowerment and process re-engineering. Multidimensional performance reporting models, including the BSC, have become popular in the public sector because they counteract the traditional emphasis on financial measures (Modell, 2004). Moreover, the BSC has been used to implement various government initiatives. Wisniewski and Olafsson (2004) and McAdam and Walker (2003) have analyzed its role in assisting with the implementation of the United Kingdom's Best Value initiative introduced in 1997 as part of the government's modernization program. Further studies examine public sector use of performance measurement and the BSC. For example, Chan (1984) focused on the BSC in municipalities

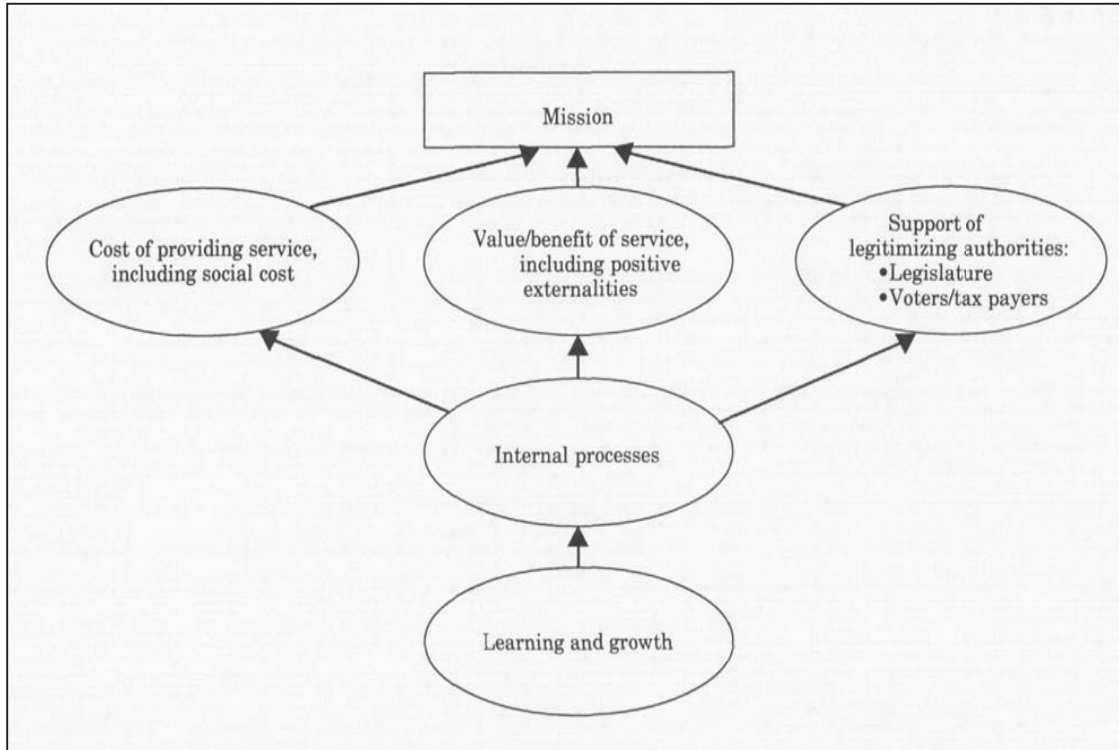
in Canada and the United States. Chow et al (1998) studied the BSC in the healthcare sector. Likierman (1993) explored the role of performance indicators as managerial tools in the public sector. Similarly, Johnsen (2005), Propper and Wilson (2003) and Freer (2002) examined how performance measurement has impacted the public sector. Many of these frameworks on their own are insufficient in meeting the needs of a public sector organization. Therefore, researchers have introduced other models such as the Public Service Excellence Model (Talbot, 1999) to incorporate the best of other frameworks. While the Public Service Excellence Model extends the concept of the BSC, it does not address stakeholder involvement and broad dissemination.

Since its introduction, Kaplan and Norton (2001a) have expanded on the application of the original BSC concept by adding a strategy map that specifies how critical elements of these perspectives are linked to organizational strategy. According to Kaplan and Norton (2001b), the BSC has evolved from a performance measurement system to an organizing framework for strategy implementation. Kaplan and Norton (1996) maintain that the BSC is not intended to replace an organization's day-to-day measurement systems. Instead, BSC measures are chosen to direct the organization toward achievement of its strategic objectives.

McAdam and Walker (2003) found that the lack of adaptation for the public sector resulted in somewhat simplistic views of customers and stakeholders. Kaplan (2001) also recognized the difficulty in implementing the original BSC framework in non-profit government organizations (NPGO's) and subsequently recommended that an organization's mission, as the overarching objective, be featured with customers/constituents placed at the highest level on the BSC. When adapting the BSC for the public sector, Johnsen (2001) concurs with Kaplan (2001) that the focus on shareholders, employees, customers and financial results must be replaced with public management concerns with other stakeholders such as clients and citizens. Kaplan's (2001) modified NPGO framework for public sector organizations is comprised of three high-level perspectives which he suggests be identified before organizations determine their objectives for the internal processes as well as the learning and growth perspectives (Figure 1):

- 1) Cost incurred: includes expenses of operating the agency and the social costs imposed on citizens. The framework is based on the assumption that agencies should minimize the direct and social costs required to achieve benefits.
- 2) Value created: refers to surrogates for value such as improved mortality rates and public safety. This aspect of the modified NPGO scorecard assumes that public sector organizations tend to use more output than outcome measures.
- 3) Legitimizing support: assumes the organization strives to meet the objectives of its donors.

Figure 1: Modified Balanced Scorecard for NPGO's



Source: Kaplan (2001)

Various researchers have illustrated the BSC's role as an external communication tool. Forgione (1997) points out that in the insurance and financial services industry, one Swedish company, Skandia, used the BSC to communicate information to external market participants. Similarly, Aidemark's (2001) study also found that the BSC was regarded as a communications tool since it clarified goals, fostered dialogue and articulated the complex work of health care professionals to management and politicians. However, these studies focused on one-way communication of results to stakeholders rather than on soliciting their input in strategic plan development. In other words, many of the previous studies did not emphasize the importance or role of two-way communication with stakeholders.

While the modified NPGO scorecard (Kaplan, 2001) recognizes the differences in focus of private versus public sector organizations, it does not provide a mechanism to engage stakeholders by inviting them to be involved in the development of the strategic plan and related targets. Sanderson (2001) contends that the viewpoints of all major stakeholders should be considered in the selection of key measures and targets and that a participative approach is needed. Ultimately, to ensure the BSC is meaningful, it is beneficial to give stakeholders a proactive say in the strategic direction of the organization (Friedman and Miles, 2006; Rixon, 2010a). Friedman and Miles define involvement as providing

stakeholders with an opportunity to present their own proposals. Consultation is a passive approach whereas involvement is a proactive approach. Without this level of stakeholder engagement, managers tend to provide information based on their subjective perceptions of what they believe stakeholders want (Daake and Anthony, 2000).

In addition to fostering a two-way communication process, the accountability value of a strategic plan and BSC is enhanced when it is broadly disseminated to stakeholders. Indeed, the existence of a BSC in and of itself does not automatically guarantee that an organization will meet its stakeholders' accountability expectations. While the provision of information is viewed as one means of fulfilling accountability expectations (Chandler, 1998), accountors must do more than merely publish information; they must distribute it as well as ensure the public is aware of its existence and has access to it (Stewart, 1984). Therefore, it is important for a public sector agency to make a reasonable effort to increase stakeholder awareness that the annual report is available (Coy et al, 2001). This responsibility can be discharged through press releases, websites and newspaper inserts (Hooks et al, 2002; Hodges et al, 2002). It has also been suggested that public attention can be gained through cross-jurisdictional comparisons (Ammons, 1995) since benchmarking has developed into an accepted approach to compare an organization's functions and processes (Talbot, 1999).

Methodology

This exploratory case study is based on the Workplace Health, Safety and Compensation Commission in the province of Newfoundland and Labrador, Canada. All Workers' Compensation Boards (WCBs)¹ in Canada are similar in that they are public sector agencies established by provincial government legislation to provide wage loss, health care, rehabilitation and long-term disability benefits to workers who are injured during the course of their employment. This mandatory, collective liability system is compulsory for employers and workers (Rixon, 2010b).

The methodology for this case study is comprised of a documentary review of the Newfoundland WCB agency's strategic plan and BSC as well as face-to-face in-depth interviews with representatives from the two main WCB stakeholder groups and senior agency officials. Fifteen respondents selected for the semi-structured interviews were comprised of representatives from six trade unions, six employer associations and three WCB executives. Employer and trade union respondents were selected from 17 employer associations and 15 trade unions which participated in the agency's semi-annual round table meetings. Respondents selected for this study reflect a cross-section of industries, rural and urban regions as well as small and large stakeholder groups.

The interviews were conducted at the workplaces of the respondents and were of one to two hours duration each. During the semi-structured interviews, after the researcher posed a series of open-ended questions, respondents completed a questionnaire comprised of checklists and Likert-scale questions. The responses to the open-ended questions were audio taped,

¹ Most provinces in Canada refer to their workers' compensation agencies as "Workers' Compensation Boards" (WCBs). Others such as New Brunswick and Newfoundland and Labrador use the term "Commission". However, for simplicity, the term WCB will be used to refer to all workers' compensation agencies in Canada

transcribed, analyzed and coded using NVivo software. Checklist and Likert-scale questions were summarized and tabulated using spreadsheets. Responses of industry associations are identified as ER, trade unions as TU and agency executives as EX.

Case Study Findings: Discussion and Analysis

The Newfoundland WCB introduced its first BSC in 2001 for the five-year period 2002 – 2006 to monitor performance and report on its strategic plan. It was issued semi-annually to industry associations and trade union representatives attending its round table meetings and it was also included in the annual report. The agency’s BSC included the financial, customer, internal business processes and learning and growth perspectives (Kaplan and Norton, 1992). The scorecard design reflected the original version of Kaplan and Norton’s (1992) BSC rather than the NPGO version (Kaplan, 2001) since the agency’s BSC was developed prior to the introduction of the NPGP version.

The WCB’s six goals, the number of strategies for each along with an indication of Norton and Kaplan’s (1992) corresponding BSC perspectives as depicted in Table 1. Three goals (A, B and D) were aligned with Kaplan and Norton’s customer perspective, whereas there was one goal for each of the remaining perspectives: financial, internal business processes and learning and growth. This finding is consistent with the agency’s mandate to provide services to injured workers and employers. Therefore, it makes sense that 15 of the 28 goals (54%) would be targeted towards its customers, defined as workers and employers.

Table 1: WCB Balanced Scorecard

Goal	BSC Perspective	Number of strategies
A. Prevention focus achieving results	Customer	4
B. Injured workers and employers better served	Customer	7
C. Financially secure	Financial	4
D. Stakeholders sharing responsibility for changes	Customer	4
E. WCB operating more efficiently	Internal Business Processes	4
F. Knowledgeable employees satisfied and retained	Learning and Growth	5

Source: WCB Balanced Scorecard 2002-2006 and Kaplan and Norton (1992)

Although the agency’s BSC design was based on Kaplan and Norton’s (1992) scorecard framework, for the most part it can also be correlated with each of the levels of Kaplan’s (2001) modified NPGO framework. Kaplan’s (2001) modified BSC overarching objectives were reflected in the WCB’s mission statement, which emphasized the agency’s dual objectives to prevent and manage workplace injuries and to provide a reasonable level of benefits based on reasonable assessment rates (premiums). The modified BSC’s ‘cost incurred’ to provide service correlated with Goal C – ‘to be financially secure’. The value or benefit of the service incorporated two of the WCB’s goals – Goals A and B. Goal A, which

focused on prevention, created value by reducing the cost of injuries and replacement workers for employers by minimizing wage loss for workers, and through containing health care costs. Goal B emphasized service to employers and workers, and this fits with the value/benefit of the service under the NPGO modified model. The legitimizing support category correlates with Goal D due to emphasis on co-operation and partnership with the agency. Legitimizing support is provided by the funders (employers) and beneficiaries (workers). These groups correlated with voters and taxpayers under the NPGO modified BSC. The agency's objective with this goal was to attain greater co-operation from workers and employers in achieving the strategic plan. When the plan was developed, the agency was in a financial crisis and required full co-operation from employers and workers in reducing and managing injuries. Finally, the Minister of Labour, through legislative responsibility, provides legitimizing support. The modified BSC's internal processes correlates with the agency's Goal E, operating efficiently. Learning and Growth is reflected in Goal F: knowledgeable workers satisfied and retained.

However, despite this correlation, there were several subtle differences between the intent of the modified NPGO scorecard and its 1992 version as utilized by the WCB. Kaplan (2001) contended that NPGO's should minimize the direct and social costs associated with provision of benefits. This is a slightly different connotation than that ascribed by the WCB whose objective, as indicated in its mission statement, was to provide a 'reasonable level of benefits to injured workers based on reasonable assessment rates for employers' (Workplace Health, Safety and Compensation Commission Annual Report, 2005). The WCB's objective is not necessarily to minimize costs since the agency's goal is to provide reasonable benefits, not the lowest level of benefits possible.

Another aspect of the NPGO scorecard differentiation relates to its legitimizing support category. Kaplan (2001) contends that agencies should aim to meet the objectives of their funding source, which is assumed to be government. This is different for the WCB since its source of funding is provided solely through premiums from employers. Therefore, the WCB has to not only satisfy the needs of its funders (employers), but also to meet the needs of beneficiaries (injured workers). Thus, the legitimizing support for the WCB is derived primarily from the funders and beneficiaries and secondarily from government, which has legislative responsibility for the agency. It is interesting to note that the WCB's strategic plan did not make any specific reference to support government. This can be attributed to the self-funded status, which avoids a dependence on government funding. That being said, the agency reports to a Minister and, therefore, it could be argued that there needs to be greater linkage to government.

The semi-structured interviews identified several concerns with the WCB's strategic plan. These include low employer awareness of the plan, moderate stakeholder support of the plan and related targets, exclusion of certain critical performance indicators, shared responsibility for goal achievement, weak targets, insufficient stakeholder involvement in selecting the targets and the need for more relevant comparisons. Each of these concerns is discussed in the following section.

Stakeholder Awareness The semi-structured interviews revealed a lack of awareness of the strategic plan by three of the six employer respondents. In contrast, all six trade unions were aware of the WCB's strategic plan. One explanation for three employer respondents' lack of strategic plan awareness is that the same representatives did not attend all the round table meetings where the BSC reports were disseminated. This suggests an opportunity to improve

communication among the stakeholder groups since the agency may not have had a process to internally disseminate information gained at the round table deliberations. Since attendees could vary, the round table meetings may not have been an effective consultation and feedback tool for all stakeholder groups. Clearly, communication between stakeholder group representatives attending the round table meetings and their underlying constituents is important in improving the value of the BSC as an accountability tool.

In addition, it is also incumbent on the agency to increase stakeholder awareness of this report (Coy et al, 2001). Distribution of BSC reports at round table meetings and in the annual report is a fairly narrow dissemination. Attendees at the round table meetings include 17 employer associations and 15 trade unions, while the annual report was published on its website and hard copies were mailed upon request. As suggested by Hooks et al (2002) and Hodges et al (2002), increased stakeholder awareness of the report could be achieved through the media.

Stakeholder Support for Strategic Plans and Targets Although most stakeholders were aware of the strategic plan, this did not necessarily translate into support. Only four employer and four union respondents believed the plan was appropriate, as illustrated in Table 2.

Table 2: Support for Strategic Plan and Related Targets

	Strategic Plan Support			Appropriate Targets		
	<i>ER</i>	<i>TU</i>	<i>EX</i>	<i>ER</i>	<i>TU</i>	<i>EX</i>
Strongly Agree	0	0	1	1	0	0
Agree	4	4	1	2	5	2
Neither Agree/Disagree	0	1	0	1	1	0
Disagree	2	0	1	1	0	1
Strongly Disagree	0	1	0	1	0	0

Source: semi-structured interviews

Table 2 shows that five of the six union respondents supported the strategic plan targets. Meanwhile, there was only moderate employer support; two agreed and one strongly agreed with the targets. In response, one of the WCB executives concurred with the employers' view that the targets were not ambitious enough. The moderate level of support by both primary stakeholder respondents, four each for employers and unions, is somewhat surprising since both groups were given an opportunity to have input into this plan through their Board representative. This may indicate that members of the Board of Directors did not adequately consult their constituents before agreeing to the strategic plan targets.

Even more surprising was the finding that the WCB executives were divided on the appropriateness of the strategic plan. One executive disagreed with the plan and one disagreed with its related targets. Although the Board of Directors was ultimately responsible for the strategic plan, there was a collective responsibility among the Board of Directors and WCB executives for its development, implementation and achievement. The lack of full WCB executive support suggests there may have been a gap between the approved plan and what

the strategic plan would have contained had the executives been solely responsible for its development. An alternative explanation may be that as the agency neared the end of the strategic plan cycle, WCB executives recognized that the original plan needed to be revised to reflect the organization's early achievement of its targets.

A further issue raised by respondents related to the WCB achieving targets well ahead of schedule, but not adjusting them accordingly for the subsequent years. It is essential that strategic plan targets be realistic, attainable and challenging. Some of the employer and agency respondents claimed that the targets were not set high enough, particularly since many of the five-year targets were achieved in the first two years. Artificially low targets may cause constituents to lose faith in the strategic planning process and may negatively impact the organization's credibility. If it appears that the five-year targets have been achieved after the first year or two, as an example, one employer respondent indicated the agency should adjust them accordingly. This view was shared by a WCB executive who noted:

‘There should some provision...that we can modify the goals at some predetermined interval, that you go back and revisit your goals. The current strategic plan right now is so far ahead in certain goals that the original goals are really meaningless, we should go back and revisit those and if we have to, revise the targets.’

Shared Responsibility Some of the strategies to achieve Goal A were the joint responsibility of the WCB and Occupational Health and Safety (OHS)². One employer respondent expressed concern that the strategic plan involved goals over which the organization did not exercise full control. Another respondent did not consider this joint goal to be very practical or realistic due to the difficulty in holding both parties accountable. It is difficult to hold the WCB accountable for a goal which requires the cooperation and involvement of another organization. Conversely, it could be argued that this is an area where government could play an oversight role by ensuring the objectives for both the WCB and OHS are complementary and mutually supportive.

Key Performance Indicators Lacking Respondents identified several deficiencies with the key performance indicators (KPIs) used in the BSC. There were a number of areas where the WCB did not provide performance information desired by the respondents (Table 3). The performance indicators were selected by the Board of Directors with assistance from the WCB executives, without consultation with stakeholders. Arguably, had stakeholders' input been solicited, indicators such as return-to-work success rate, denial rate, total claims costs and average cost per claim would have been included in the strategic plan targets.

² Occupational Health and Safety (OHS) is a division of the Department of Government Services.

Table 3: Key Performance Indicators Not Provided by the WCB

Key Performance Indicator	ER	TU
Return-to-work success rate	5	5
Number of claims denied	5	6
Number of claims paid directly by employer	4	3
Total costs (employer paid and WCB paid)	6	3
Cost per claim (WCB portion)	6	3
Investigation results	4	3

Source: semi-structured interviews

As illustrated in Table 3, there was a high level of employer and union interest (five each) in the return-to-work success rate indicator. In view of the role of the WCB in facilitating the medical recovery and return-to-work of injured workers, it was surprising that a key performance indicator for this crucial outcome did not exist. Data were available on the number of claimants who were no longer in receipt of benefits, but there was no follow-up to determine if they returned to work and if so, whether they returned to the same employer, in the same job or another job, or to a different employer. Without this data it is extremely difficult to evaluate the WCB's success in administering claims. Rather, the approach taken by the agency was to view claimants who were no longer in receipt of benefits as a proxy for success. This may be viewed as a success for the agency in reducing costs, but does not reflect success for injured workers if they did not fully recover and resume their earning potential.

The performance indicator addressing number of claims denied reflected the WCB's diligence in evaluating acceptable claims. A claim can be denied if it is determined that the injury did not occur during the course of employment. The high level of interest of all union respondents reflects their concern that potentially legitimate claims may be denied. Five out of six employer respondents were also very interested in having this information. Employers would also be interested in the denial rate since having more claims denied would reduce costs and consequently their premiums. Despite availability of data on the number of claims denied, this performance indicator was not reported.

Four employers and three unions indicated interest in the number of claims paid directly by employers. Union concern with the number of claims paid directly by employers is lower than expected in light of the potential for this practice to introduce a two-tier system. Claimants who continue to be paid by their employers do not experience any delay in obtaining benefits, whereas the majority of claimants are removed from their employers' payroll and have to wait for payment from the WCB. A possible explanation for the low interest may be lack of stakeholder awareness of this practice, coupled with its limited utilization. However, this information is available and could be reported.

Total cost information (costs paid by WCB and cost paid by employers) was of interest to all employer respondents, but only three unions expressed interest in this data. The financial statements and BSC report included costs incurred by the WCB, but not the costs borne by employers related to workplace modifications and accommodating workers in new jobs. Total

employer and WCB cost data was of particular interest due to the increased expectations for employers to participate in the Early and Safe Return-to-Work (ESRTW)³ program. Data on total cost (WCB and employer paid) were not captured.

As depicted in Table 3, all six employer respondents were interested in cost per claim information, while only three unions desired this data. This information was readily available and could have been reported by the agency. Cost per claim statistics would aid in the evaluation of claims cost trends on a longitudinal basis. Given the significant level of concern by government, the Board of Directors and other stakeholders with the agency's financial condition, it is surprising that cost per claim information did not play a more prominent role in the strategic plan and BSC reports. Cost concerns were frequently raised by employer respondents, whereas trade unions did not emphasize costs since funding is the responsibility of employers. The contrasting levels of interest on the part of employers and unions in the performance indicators reflected the multi-faceted and often conflicting objectives of these key stakeholders.

Employers were slightly more interested in investigation results than trade unions, with four employers compared to three unions desiring this information (Table 3). This stands to reason since investigations could potentially result in denial of claims or in the termination of benefits. The agency had this information available, but did not report it. The publication of this information is a sensitive issue since employers may lobby for increased investigations while unions would be concerned about loss of benefits. The use of investigations has a negative connotation since it implies that some workers may be fraudulently receiving benefits. Clearly, there is a delicate balance in maintaining the financial stability of the system while balancing the rights of workers to obtain benefits.

It is important to note that all the indicators used in the BSC were designed to help the organization achieve its six main objectives. Therefore, it could be argued that the six KPI's that stakeholders desired but that were not provided may not have been relevant for achievement of the strategic plan. Conversely, it could be argued that if these measures were important to stakeholders, they should have been included in the strategic plan. However, use of the BSC did not preclude the WCB from gathering and publishing additional KPI's that were of interest to stakeholders. The BSC measures are not intended to replace an organization's day-to-day operational measures (Kaplan and Norton, 1996a).

Stakeholder Involvement The study found that stakeholders preferred to play a greater role in developing strategic plan targets. While employer and union stakeholder groups participated in developing the strategic plan, respondents indicated they were not sufficiently involved in selecting the specific performance indicators and targets used to monitor and measure the success of the plan. It is important to distinguish involvement from consultation. According to Friedman and Miles (2006), consultation is comprised of the agency soliciting feedback on management's plans, whereas involvement provides stakeholders with an opportunity to present their own proposals. In spite of the significant role played by the Board of Directors in developing the five-year strategic plan, it appears that there was insufficient engagement of the stakeholder groups in the process. This also points to a governance issue since Board members may not have had an adequate level of consultation and input from their

³ Early and Safe Return to Work (ESRTW) is a program requiring all employers and workers to cooperate in the worker's early and safe return to suitable and available employment with the injury employer. This usually occurs at the same time as the worker's active medical rehabilitation.

constituents. The strategic plan and BSC report should reflect stakeholder needs in order to be a relevant accountability and reporting mechanism. Stakeholder involvement would improve the accountability value of the plan and the resulting targets.

Comparative Referents As illustrated in Table 4, all six employer respondents and five union respondents identified regional Atlantic⁴ WCB’s as their preferred comparative referent. The second most desired referents were national WCB key performance indicators. National statistics were readily available from the Association of Workers’ Compensation Boards of Canada, which is an umbrella association of the WCB agencies in Canada. All the same, the WCB did not provide any national comparative referents in its annual report and published only two Atlantic referents. While stakeholders were interested in interjurisdictional comparative information, they also continued to value year-over-year actual results. Of the six employer respondents, five also preferred year-over-year actual results; in contrast, only three union respondents had this preference.

Table 4: Comparative Referents

Preferred comparative referents	ER	TU	EX
Regional (Atlantic) workers’ compensation agencies	6	5	2
National workers’ compensation statistics	5	4	0
Budgets	3	2	3
Targets	3	3	2
Private sector insurance companies	1	1	0
Year-over-year actual results	5	3	3
5-year actual results	4	2	2
Canadian average	0	1	0

Source: Semi-structured interviews

Given the emphasis on accountability, the limited stakeholder interest in comparing actual results to budgets or to targets is perplexing, particularly since this is the practice of government. This suggests that stakeholders viewed the reporting requirements of the WCB as somewhat different from government. While the WCB did not publish its budget, actual results for selected performance indicators were compared to targets in the BSC report. The lack of interest in comparing to the private sector insurance companies is interesting given the public demand for government services to be provided in a manner that is as effective and efficient as the private sector.

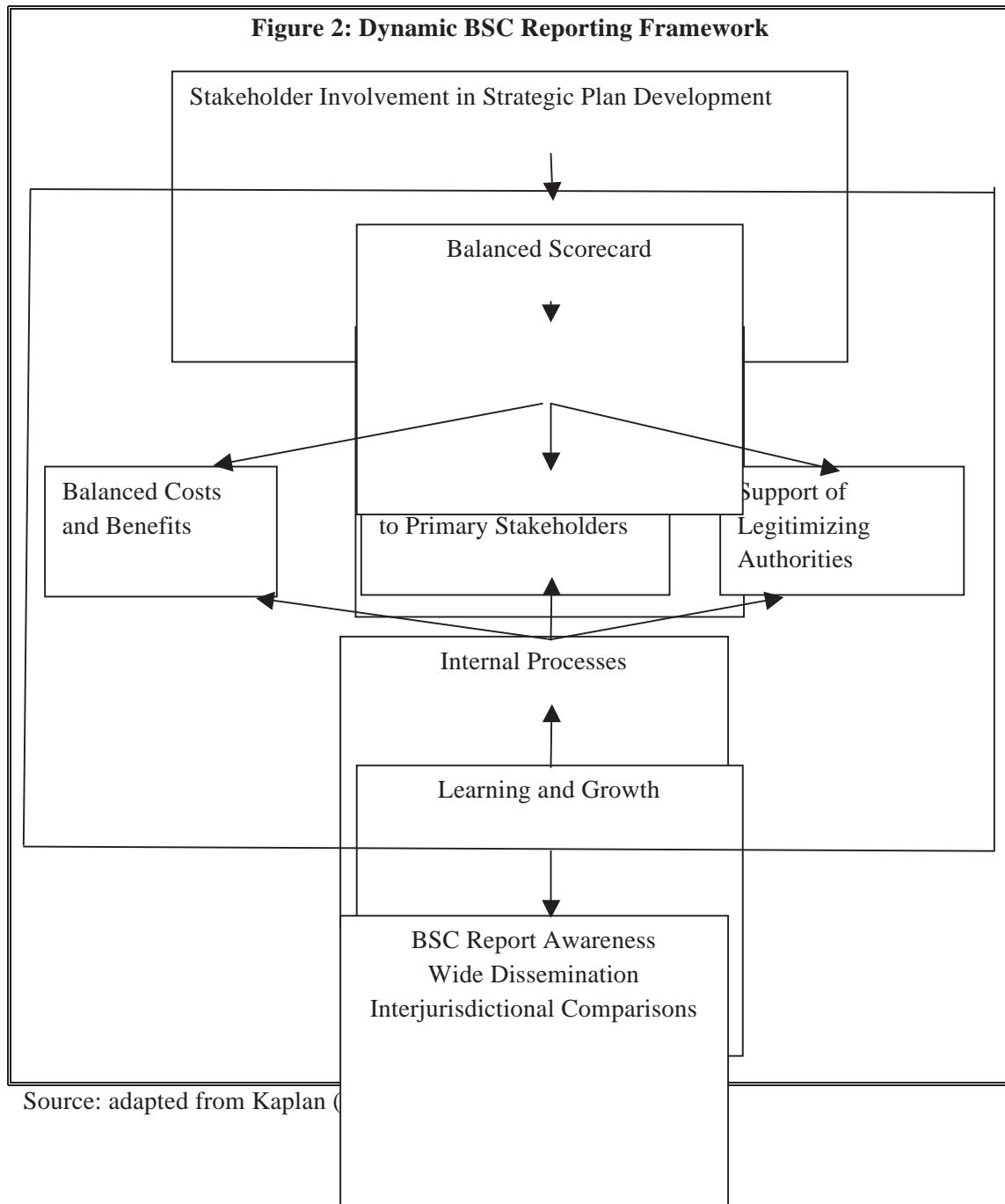
Year-over-year comparisons were desired by employers, but were of limited interest to unions. In contrast, the WCB executives indicated more interest than employers and trade unions in comparisons to budgets than year-over-year results. Comparisons to budgets could portray the agency in a favourable light when they do not exceed the budget, whereas year-

⁴ Atlantic Provinces refer to the region comprised of four provinces: Newfoundland, Nova Scotia, New Brunswick and Prince Edward Island.

over-year comparisons could highlight unfavourable cost trends. In addition, comparisons to other jurisdictions may lead to stakeholder requests for variance explanations in situations where the agency's costs were higher than some of their counterparts. Five-year actual results were of interest to more employer respondents than union respondents. Only one union respondent and no employer respondents identified the Canadian average as a desired comparative referent. This stands to reason since the Canadian average would not be all the meaningful as a result of the varying sizes of the WCB agencies. Overall, the addition of interjurisdictional comparisons, where applicable, would improve the accountability value of the BSC and, as noted by Ammons (1995), this will likely increase public awareness of the agency's BSC.

In summary, the WCB's use of the BSC as a stakeholder reporting mechanism was only moderately successful. A pervasive theme that emerged throughout this study concerned the lack of two-way communication with stakeholders. In particular, the study revealed an insufficient level of communication among the Board of Directors and their constituents, minimal stakeholder involvement in selecting the BSC indicators and low stakeholder awareness of the strategic plan. Furthermore, the respondents indicated that they would like to have more input into the strategic plan and selection of its related targets. These findings are consistent with Sanderson's (2001) contention that all stakeholders should participate in the selection of targets and measures. However, the approach taken by the WCB was reflective of the communication style described by Aidemark (2001) which was more of a one-way communication approach with the organization explaining its work.

Figure 2 illustrates how the modified NPGO balanced scorecard framework could be extended to include stakeholder involvement in developing the strategic plan and to increase awareness of the report through broader dissemination. The Dynamic BSC Reporting Framework is based on the modified BSC for NPGO's (Kaplan, 2001), but also incorporates a significant level of stakeholder communication in its development and dissemination. In addition, the Dynamic BSC Reporting Framework includes interjurisdictional comparative referents to further enhance its accountability value.



The objective of this exploratory case study was to examine the implications of using Kaplan and Norton's BSC as a stakeholder report to demonstrate accountability for public sector agencies. This study has shown that while an organization's BSC may reflect all the elements of Kaplan and Norton's (1992) BSC as well as Kaplan's (2001) modified NPGO scorecard, this does not necessarily indicate that it will meet stakeholder needs. This study found that accountability is enhanced when stakeholders are invited to participate in developing the strategic plan and its targets. In addition, where feasible, the accountability value of BSC reports could be improved by including interjurisdictional comparative referents.

Furthermore, if the BSC is to fulfill an accountability role, the agency should ensure that there is increased public awareness of the report.

This research contributes to body of literature on the BSC as a reporting tool by expanding the framework to include stakeholder involvement in developing the strategic plan and related targets and to improve dissemination of the report. While this study is based on a single organization, its findings are expected to be applicable to all other Canadian WCB jurisdictions. Further research is needed to determine the applicability of the Dynamic BSC Reporting Framework for other public sector agencies.

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PERTINENCE DE LA DIVULGATION D'INFORMATION SUR LA JUSTE VALEUR DES INSTRUMENTS FINANCIERS SELON LE CHAPITRE 3860 DE L'ICCA

La présente étude a pour objectif d'évaluer la pertinence de la divulgation de la juste valeur des instruments financiers selon le chapitre 3860 du manuel de l'Institut Canadien des Comptables Agréés (ICCA). L'analyse de 268 entreprises manufacturières canadiennes sur une période de neuf ans tend à démontrer que les investisseurs considèrent seulement la variation entre la valeur comptable et la juste valeur des passifs financiers, et ce, avec une certaine réserve.

Introduction

Le concept de la juste valeur a été étudié sous plusieurs formes et de différentes manières au cours des dernières décennies. Déjà en 1983, à la suite de l'adoption du *Statement of financial accounting standards* (SFAS) No. 19, des études ont été menées sur la divulgation de la juste valeur dans les états financiers (Bell, 1983). Dans un contexte plus actuel, l'adoption grandissante des normes internationales par plusieurs pays apporte de nouvelles avenues de recherche intéressantes.

En effet, malgré les nombreuses études et résultats soulevés, la divulgation de la juste valeur demeure toujours un sujet controversé. Plusieurs éléments sur les caractéristiques de la qualité de l'information¹ ont été soulevés par des chercheurs, des experts comptables, des représentants de l'industrie des services financiers, le *Financial Accounting Standards Board* (FASB), le Président de la commission des valeurs mobilières et M. Greenspan, ancien président du Conseil de la réserve fédérale américaine (Petroni et Wahlen, 1995).

Les partisans du coût historique s'appuient surtout sur la fiabilité de cette méthode. Ils reprochent à la juste valeur d'apporter un risque plus élevé d'erreurs de mesure, un risque accru de manipulation ainsi que de la volatilité sur les marchés. Un problème majeur relevé par la plupart des études et reporté par So et Smith (2009) est l'absence d'un marché actif pour la majorité des actifs et des passifs.

Fortin (2005) souligne que la majorité des comptables préconisent l'application de la juste valeur marchande. Dans ses dires, il est important de différencier la juste valeur et la juste valeur marchande. Telle que définie par Skinner et Milburn (2003), « La juste valeur est plus générale; elle désigne le montant auquel on prévoit qu'un instrument financier sera échangé, entre des parties bien informées et dans des conditions de concurrence. Tandis que, la valeur marchande renvoie de manière plus restrictive au prix qu'on peut obtenir sur un marché actif. » En effet, dans un marché parfait et complet, les

¹ Selon le chapitre 1000 de l'ICCA « Les qualités de l'information sont les caractéristiques de l'information fournie dans les états financiers qui font que celle-ci est utile aux utilisateurs. Les quatre principales qualités de l'information sont la compréhensibilité, la pertinence, la fiabilité et la comparabilité.»

difficultés liées aux estimations sont éliminées et les utilisateurs peuvent apprécier les avantages et la pertinence de la divulgation de la juste valeur (Barth et Landsman, 1995). En ce sens, Lindsell (2005) de la firme Ernst & Young a même suggéré à l'*International Accounting Standards Board* (IASB) de limiter l'application de la juste valeur aux actifs et passifs pouvant se comparer sur un marché actif. Les partisans de la juste valeur affirment que cette méthode apporte de l'information plus utile et neutre aux utilisateurs (Wahlen et al., 2000). Le FASB préconise même la juste valeur face à la méthode du coût historique pour ce qui est de sa pertinence (Brickner, 2002)².

L'IASB, le FASB et l'ICCA ont développé, au cours des années, des normes régissant l'utilisation et l'application de la juste valeur dans les états financiers. Ces institutions de normalisation comptable vont de l'avant avec une utilisation accrue de la juste valeur malgré les nombreuses controverses toujours présentes. Par ailleurs, pour se conformer à ces nouvelles normes, les entreprises doivent engendrer des coûts supplémentaires pour évaluer les instruments financiers qui ne s'échangent pas sur un marché actif. Face à une telle situation, il serait approprié de nous demander si la divulgation de juste valeur est vraiment pertinente³ pour les utilisateurs des états financiers.

Plusieurs études ont déjà été menées sur la pertinence et l'utilité de la présentation ou la divulgation de la juste valeur de différents postes aux états financiers, selon diverses normes et dans nombreux pays (Brickner, 2002)⁴. Certains chercheurs se sont penchés sur la pertinence de la divulgation des instruments financiers, tels que : (Nelson, 1996; Barth, Beaver et Landsman, 1996; Eccher, Ramesh et Thiagarajan, 1996; Bernard, Merton et Papelu, 1995). La majorité de ces études ont toutefois été effectuées dans le contexte américain ou encore auprès de l'industrie bancaire. Les sociétés ouvertes⁵ doivent appliquer les normes canadiennes sur la divulgation de la juste valeur des instruments financiers (ICCA 3860.96). Il serait donc intéressant d'étudier la pertinence de cette norme canadienne auprès de divers secteurs d'activités.

L'objectif de cette étude est donc d'évaluer la pertinence de la divulgation d'information sur la juste valeur marchande des instruments financiers selon le chapitre 3860 de l'ICCA et ce, dans le secteur manufacturier canadien.

La pertinence de la juste valeur des instruments financiers est un sujet qui a rarement été soulevé dans les études canadiennes. Jusqu'à présent, des études sur la pertinence de la juste valeur selon des normes américaines, internationales, européennes et australiennes ont été effectuées. Le présent document est unique en son genre puisqu'il développe ce sujet selon une norme canadienne. Il se démarque davantage en étudiant des entreprises provenant d'industries variées qui échangent sur la Bourse de Toronto.

La recherche actuelle semble démontrer que la pertinence de divulguer la juste valeur des instruments financiers diffère entre un actif financier et un passif financier. En effet, nous avons observé que les investisseurs examinent la variation entre la juste valeur et la valeur comptable des passifs financiers, mais ne considèrent pas ces variations au niveau des actifs financiers.

² Brickner, R. (2002). *An analysis of the factors impacting the relevance of SFAS No. 107 fair value disclosures*, thèse de doctorat (philosophy), Kent State University, 2002, 91 p.

³ L'information est pertinente de par sa nature lorsqu'elle peut influencer sur les décisions des utilisateurs en les aidant à évaluer l'incidence financière des opérations et des faits passés, présents ou futurs, ou en permettant de confirmer ou de corriger des évaluations antérieures. (ICCA 1000).

⁴ Brickner, *op. cit.*

⁵ Les sociétés ouvertes s'entendent des entreprises qui ont émis des obligations ou des actions qui sont négociées sur un marché public, qui sont tenues de déposer des états financiers auprès d'une commission de valeurs mobilières, ou qui fournissent des états financiers en vue de l'émission de n'importe quelle catégorie de valeurs mobilières sur un marché public. (ICCA 3860).

La suite du document présente une section englobant différents concepts pertinents à la présente étude ainsi que les travaux antérieurs liés à la juste valeur des instruments financiers. La troisième section précise la méthodologie utilisée pour évaluer la pertinence de la divulgation. Les résultats seront ensuite présentés dans la section suivante. Une conclusion et une discussion suivront afin de faire un retour sur les points saillants de l'étude, de présenter diverses limites et finalement d'ouvrir la voie à de nouvelles avenues de recherches.

Cadre théorique

Les concepts et normes liés à la juste valeur des instruments financiers

La base même de l'élaboration et de la présentation des états financiers au Canada est soumise au chapitre 1000 du manuel de l'ICCA. Ces normes définissent les objectifs et les qualités de l'information qui doivent toujours être pris en considération dans les choix réfléchis des professionnels comptables dans l'élaboration des états financiers. Des fondements conceptuels semblables régissent aussi les normes américaines et internationales. Ils servent donc d'assises et de guides aux diverses institutions et associations de développement et d'amélioration des normes comptables.

L'utilisation accrue de la juste valeur et l'adoption prochaine des normes internationales ont cependant soulevé plusieurs questions au niveau des objectifs et des qualités normalement recherchés dans les états financiers. Robert (2005) remet en question la complexité des méthodes de calculs de la juste valeur, et ce, même pour les utilisateurs les mieux informés. Les nouvelles normes sur l'évaluation de la juste valeur des instruments financiers au niveau des instruments non transigés sur un marché actif apportent un problème de dualité entre la pertinence et la fiabilité. Plusieurs chercheurs soulignent que le manque de fiabilité dans l'évaluation de la juste valeur réduit la pertinence de sa divulgation ou de sa présentation dans les états financiers (Cotter et Richardson, 2002; Petroni et Wahlen, 1995).

La norme 3860 présente l'information devant être fournie au sujet de la juste valeur des instruments financiers ainsi que sa présentation dans les états financiers (3860.78-88)⁶. En 1989, l'ICCA et l'IASB se sont associés afin d'élaborer des normes sur les instruments financiers. C'est grâce à ce projet que la norme 3860 a été adoptée en 1995. Afin d'élaborer cette norme, les membres du projet se sont inspirés des normes de comptabilisation de la juste valeur établies par le FASB au cours des années 1980.

Le FASB avait décidé d'étudier ces normes en place suite à plusieurs recherches et scandales financiers ayant remis en question la pertinence et l'utilisation de la comptabilisation selon la méthode du coût d'acquisition. De plus, durant ces années, la tendance de la gestion des risques et l'expansion des marchés financiers ont beaucoup influencé le FASB à établir de nouvelles normes (Skinner et Milburn, 2003). Cette norme a été en vigueur entre 1996 et 2006 pour l'ensemble des sociétés ouvertes au Canada (voir note 3). Ainsi, offre-t-elle la possibilité d'étudier la pertinence de la divulgation de la juste valeur des instruments financiers sur un grand nombre d'entreprises pour plusieurs années.

Recensement des travaux antérieurs

Les normes sur la juste valeur ont évolué énormément dans plusieurs pays. Ces changements ont incité plusieurs auteurs à étudier, sous différents angles, diverses variables liées à la divulgation et à la présentation de la juste valeur. Barth et Landsman (1995) se sont intéressés aux concepts de base de

⁶ L'entité doit fournir des informations sur la juste valeur pour chaque catégorie d'actifs financiers et de passifs financiers, constatés et non constatés. Lorsque les contraintes de temps et d'argent ne permettent pas de déterminer la juste valeur d'un actif financier ou d'un passif financier avec suffisamment de fiabilité, l'entité doit mentionner ce fait et fournir des informations sur les principales caractéristiques de l'instrument financier sous-jacent qui sont pertinentes par rapport à sa juste valeur.

l'application de la juste valeur dans les états financiers. Ils ont utilisé un exemple simple pour montrer l'utilisation de la juste valeur premièrement dans un contexte financier parfait et complet et ensuite dans un contexte plus réaliste. Ils ont conclu que dans un marché parfait, l'information apportée par la juste valeur marchande est pertinente. Cependant, dans un marché imparfait, l'utilisation d'estimations provoque des erreurs de mesures. En d'autres termes, la majorité des auteurs cités dans le présent document ont soulevé ce point en préconisant l'utilisation de la juste valeur dans un contexte où l'estimation reposait sur la valeur d'éléments transigeant sur un marché actif. Barth et Landsman (1995), pour leur part, se sont questionnés sur la relation existant entre les états financiers présentés selon la juste valeur et la valeur de l'entreprise. Barth, Beaver et Landsman (2001) ont affirmé : «...un montant comptabilisé est pertinent, seulement si ce montant permet aux utilisateurs d'évaluer l'entreprise et s'il est assez fiable pour se refléter dans le prix de l'action ». Aboody, Barth et Kasznik (1999) ont étudié, en partie, cette relation à l'aide de 738 entreprises d'Angleterre entre 1983 et 1995. Ils ont relevé une relation significativement positive entre la réévaluation d'actifs, le prix de l'action et la performance future des entreprises.

Le niveau de fiabilité et de pertinence peut être influencé par plusieurs facteurs. Selon Cotter et Richardson (2002), la réévaluation augmente la pertinence, mais diminue la fiabilité. Ces auteurs ont étudié 100 entreprises australiennes de 1981 à 1999 afin de déterminer si la juste valeur était plus fiable lorsqu'elle était mesurée par un évaluateur indépendant. Les auteurs ont déterminé que l'évaluation externe était surtout de mise lors de l'évaluation d'éléments ne pouvant pas être comparés sur un marché actif. La pertinence peut aussi être influencée par l'asymétrie d'information entre les diverses sources d'évaluation. À cet effet, Muller et Reidl (2002) ont déterminé que, lorsqu'il y a une évaluation interne, l'asymétrie d'information est plus grande, ce qui influence négativement le prix des actions. Dans le même sens, à la suite d'une étude des travaux antérieurs, Landsman (2007) a conclu qu'en général, la pertinence était influencée par la source des estimations. En revanche, les résultats de Bernard et al. (1995) avaient démontré qu'au niveau des banques danoises, certaines estimations provenant des gestionnaires demeuraient fiables aux yeux des investisseurs.

Cotter et Richardson (2002) ont, par la suite, étudié le niveau de fiabilité que les investisseurs avaient face à la renommée de la firme de vérification et à la composition du conseil d'administration. Ils ont conclu que la qualité de la vérification et l'indépendance du conseil d'administration n'ont pas d'influence sur la fiabilité. Muller et Reidl (2002) ont confirmé cette absence de lien au niveau des vérificateurs en différenciant d'un côté les entreprises vérifiées par une des six firmes internationales⁷ et celles vérifiées par d'autres firmes. Pour sa part, Brickner (2002)⁸ a trouvé que la pertinence de la divulgation de la juste valeur était influencée par la renommée du vérificateur. Il a aussi trouvé une influence provenant de la santé financière de l'entreprise, de sa taille ainsi que de la différence relative entre la juste valeur et la valeur historique. Les résultats précédents pouvaient cependant différer selon la catégorie d'instruments financiers. D'autres variables peuvent aussi influencer la pertinence, tels que le lieu de présentation de la juste valeur dans les états financiers (So et Smith, 2009) ou encore la perception des différents utilisateurs (Anagnostopoulos et Buckland, 2005). Somme toute, les investisseurs évaluent, en général, la juste valeur en considérant les états financiers dans leur ensemble (Brickner 2002).

Trois études ont été menées en 1996 suite à l'application du SFAS No. 107 (Barth et al., 1996; Eccher et al., 1996; Nelson, 1996). Ces recherches se rapprochent davantage de l'étude actuelle puisqu'elles ont analysé la pertinence de la divulgation de la juste valeur selon l'application d'une norme comptable spécifique. Ces divers auteurs ont effectué leur étude auprès d'échantillons variant entre 133 et 328 états financiers d'entreprises bancaires pour les années 1992 et 1993. Chacun d'entre eux a développé

⁷ De 1989-1998 il y avait six grandes firmes de vérification (Ernst & Young, Arthur Anderson, Coopers & Lybrand, Deloitte & Touche, Peat Marwick Mitchell, Price Waterhouse). Elles sont aujourd'hui devenues les quatre plus grandes firmes à la suite d'une fusion entre Price Waterhouse et Coopers & Lybrand et la vente d'Arthur Anderson.

⁸ Brickner, *op. cit.*

sa méthodologie avec différentes régressions pour examiner les liens entre la capitalisation boursière des entreprises et les justes valeurs divulguées au regard de certains éléments des instruments financiers. Barth et al. (1996) ont examiné les liens entre les gains (ou pertes) non réalisés de la capitalisation boursière des entreprises (c.-à-d., la capitalisation boursière moins capitaux propres) et les gains (ou pertes) non réalisés des instruments financiers (c.-à-d., juste valeur moins valeur comptable). Eccher et al. (1996) et Nelson (1996) ont plutôt examiné les liens entre le ratio de la capitalisation boursière (ou les gains ou pertes non réalisés de la capitalisation boursière) sur la valeur comptable des capitaux propres et différentes variables représentant les différences entre la juste valeur et la valeur comptable de certains éléments des instruments financiers. Ils ont analysé séparément la pertinence de différents postes du bilan qui étaient présentés selon le SFAS No.107. Sous l'application de cette norme, Barth et al. (1996) et Eccher et al. (1996) ont conclu que la divulgation de la juste valeur est pertinente pour plusieurs postes du bilan. Ces éléments comprenaient les comptes de valeurs mobilières, les prêts, les dettes à long terme et les éléments hors bilan. Par contre, la juste valeur des éléments hors bilan a seulement été reconnue pertinente par Eccher et al. (1996). Ses résultats ont de plus démontré que la divulgation de la juste valeur au niveau des postes de dépôts ne semblait pas pertinente (Barth et al., 1996; Eccher et al., 1996; Nelson, 1996). Contrairement à ses homologues, Nelson (1996) a obtenu des résultats différents pour ce qui est des postes de dettes à long terme et il a obtenu des résultats mitigés en ce qui concerne les éléments de valeurs mobilières.

Barth et al. (1996) ont soutenu l'utilisation du secteur d'activité bancaire en spécifiant le pourcentage d'instruments financiers inclus dans les états financiers des banques. La divulgation de la juste valeur marchande est peut-être pertinente chez les banques justement en raison de cette importance. Tel qu'indiqué plus tôt, la norme 3860 s'applique à l'ensemble des entités ouvertes; il sera donc intéressant de voir comment réagissent les utilisateurs des états financiers dans des secteurs d'activités différents.

Dans la présente étude, les instruments financiers seront analysés dans leur ensemble. Lors de la collecte des données, les variations entre la valeur comptable et la juste valeur ont surtout été repérées pour les postes d'investissements⁹ et les postes de dettes à long terme. D'après les études antérieures, ces éléments d'information semblent démontrer une certaine pertinence (Barth et al., 1996; Eccher et al., 1996). Notons, par ailleurs, que par rapport aux travaux antérieurs, les observations de l'étude portent sur des années plus récentes. Ainsi, on peut supposer que les utilisateurs ont une meilleure connaissance des différents instruments financiers. Cette connaissance accrue devrait permettre d'observer des résultats probants en ce qui a trait à la pertinence de la divulgation de la juste valeur des instruments financiers. À la lumière de ces faits, nous prévoyons donc que la divulgation de la juste valeur des instruments financiers sous l'application de la norme 3860 sera prise en compte par les investisseurs.

Méthodologie

Modèles empiriques

Cette étude utilise un modèle sensiblement similaire à celui utilisé par Berthelot, Morris et Desfleurs (2009). Ces derniers se sont basés sur les travaux de Ohlson pour opérationnaliser leurs variables. Ce modèle met en relation la capitalisation boursière des entreprises avec les bénéfices et la valeur comptables de l'avoir des actionnaires ordinaires de celles-ci. Dans le but d'évaluer la pertinence de la divulgation de la juste valeur des instruments financiers, ce modèle a été adapté en fonction des variables étudiées et les équations estimées sont présentées ci-dessous :

⁹ Les entreprises de divers secteurs manufacturiers utilisent le plus souvent l'appellation «investissement» au lieu du terme «valeurs mobilières» utilisée normalement dans le secteur bancaire.

$$VM_{j,t+6} = \beta_0 + \beta_1 AAOC_{j,t} + \beta_2 BEN_{j,t} + \beta_3 VCA_{j,t} + \beta_4 VCP_{j,t} + \beta_5 JVA_{j,t} + \beta_6 JVP_{j,t} + \beta_7 R_{j,t}^a + \beta_8 R_{j,t}^b + \beta_9 AN_{j,t} + \varepsilon_{j,t} \quad (1)$$

$$VM_{j,t+6} = \beta_0 + \beta_1 AAOC_{j,t} + \beta_2 BEN_{j,t} + \beta_3 VCA_{j,t} + \beta_4 VCP_{j,t} + \beta_5 JVA_{j,t} + \beta_6 JVP_{j,t} + \beta_7 R_{j,t}^a + \beta_8 R_{j,t}^b + \beta_9 AN_{j,t} + \varepsilon_{j,t} \quad (2)$$

$$VM_{j,t+6} = \beta_0 + \beta_1 AAOC_{j,t} + \beta_2 BEN_{j,t} + \beta_3 VCA_{j,t} + \beta_4 VCP_{j,t} + \beta_5 JVA_{j,t} + \beta_6 JVP_{j,t} + \beta_7 R_{j,t}^a + \beta_8 R_{j,t}^b + \beta_9 AN_{j,t} + \varepsilon_{j,t} \quad (3)$$

$$VM_{j,t+6} = \beta_0 + \beta_1 AAOC_{j,t} + \beta_2 BEN_{j,t} + \beta_3 VCA_{j,t} + \beta_4 VCP_{j,t} + \beta_5 JVA_{j,t} + \beta_6 JVP_{j,t} + \beta_7 R_{j,t}^a + \beta_8 R_{j,t}^b + \beta_9 AN_{j,t} + \varepsilon_{j,t} \quad (4)$$

Voici la description des variables utilisées :

- $VM_{j,t+6}$ = valeur marchande des actions ordinaires de l'entreprise j six mois après la fin de l'exercice financier t ;
- $AAOC_{j,t}$ = avoir des actionnaires ordinaires de l'entreprise j à la date de clôture des états financiers de l'exercice t corrigé de la valeur comptable des actifs financiers et des passifs financiers présentés au bilan;
- $BEN_{j,t}$ = bénéfice de l'exercice t disponible aux actionnaires ordinaires de l'entreprise j ;
- $VCA_{j,t}$ = valeur comptable des actifs financiers de l'entreprise j présentée au bilan pour l'exercice t ;
- $JVA_{j,t}$ = juste valeur des actifs financiers de l'entreprise j divulguée dans les notes aux états financiers à la date de clôture de l'exercice t ;
- $VCP_{j,t}$ = valeur comptable des passifs financiers de l'entreprise j présentée au bilan pour l'exercice t ;
- $JVP_{j,t}$ = juste valeur des passifs financiers de l'entreprise j divulguée dans les notes aux états financiers à la date de clôture de l'exercice t ;
- $R_{j,t}^a$ = variable dichotomique égale à 1 pour une entreprise j divulguant son risque de taux d'intérêts et égale à 0 autrement;
- $R_{j,t}^b$ = variable dichotomique égale à 1 pour une entreprise j divulguant son risque de crédit et égale à 0 autrement;
- $AN_{j,t}$ = variable dichotomique égale à 1 pour l'observation des variables d'une entreprise j , pendant l'année t et égale à 0 autrement. Cette variable est introduite afin de considérer de façon unique chaque année observée pour chacune des entreprises;
- $\varepsilon_{j,t}$ = terme d'erreur.

L'équation 1 a été estimée afin d'évaluer la mesure selon laquelle les autres variables contribuaient à l'explication de la capitalisation boursière des entreprises. La valeur marchande $VM_{j,t+6}$ correspond à la cote boursière d'une entreprise j le sixième mois suivant la fermeture de son exercice, multipliée par le nombre d'actions ordinaires en circulation à la date de clôture de l'exercice t . La valeur de l'avoir des actionnaires ordinaires (AAOC) a été corrigée de la valeur comptable des actifs et passifs financiers dans toutes les équations. Cette correction était aussi nécessaire dans l'équation 1 afin qu'elle soit comparable aux équations subséquentes qui introduisent la valeur comptable des actifs et passifs financiers comme variables indépendantes. Sans cette correction, les équations 2 à 4 auraient considéré la valeur des instruments financiers deux fois. Tel que décrit plus haut, selon ce modèle, l'avoir des actionnaires ordinaires et le bénéfice expliquent la plus grande partie de la variance de la capitalisation boursière des entreprises. Il est donc prévu que les coefficients des variables indépendantes de la première équation, exception faite de la variable $BEN_{j,t}$, soient significatifs et positifs. Afin de différencier l'apport distinctif d'un bénéfice comparativement à une perte, nous avons introduit le terme «Neg». Cette

variable dichotomique qui prend la valeur de 1 lorsque l'entreprise présente une perte et 0 autrement, sert à corriger la prise en compte différente des bénéfices et des pertes par les investisseurs. Par conséquent, nous prévoyons que cette variable apporte un coefficient significatif et négatif.

L'équation 2 introduit les variables de la valeur comptable des actifs financiers et des passifs financiers. Cette équation permettra d'évaluer la valeur informationnelle de ces variables pour les investisseurs. Ensuite, elle pourra être comparée avec l'équation 3 afin d'évaluer l'explication marginale que peut apporter la divulgation des justes valeurs. Nous prévoyons que les coefficients des variables représentant les bénéfices et la valeur comptable des instruments financiers comptabilisée dans les actifs seront positifs et significatifs alors que celui de la variable représentant la valeur comptable des instruments financiers comptabilisés dans les passifs devrait être négatif et significatif.

L'équation 3 nous permettra de répondre à la problématique principale de cette recherche. Cette équation inclut la variation entre la juste valeur et la valeur comptable des instruments financiers. Cet ajout facilite l'analyse de la pertinence de divulguer la juste valeur des instruments financiers. Ces variables devront obtenir un coefficient significatif ainsi qu'une variation significative des R^2 ajusté entre l'équation 2 et l'équation 3 afin de pouvoir reconnaître l'utilité informationnelle de la juste valeur. Afin d'obtenir des variations positives représentant une perception positive du point de vue des utilisateurs des états financiers, la variation des actifs a été obtenue en soustrayant la valeur comptable de la juste valeur. Pour ce qui est de la variation des passifs, la juste valeur a été soustraite de la valeur comptable. Dans la situation où une entreprise présente un investissement ayant une juste valeur plus importante que sa valeur comptable, les investisseurs interpréterons ce fait comme étant une bonne nouvelle puisque cela signifie que certains actifs de l'entreprise sont sous-évalués. D'un autre côté, si une entreprise présente un passif ayant une valeur comptable plus élevée que sa juste valeur, les utilisateurs pourront conclure, s'ils ont confiance aux estimations, que l'entreprise aura moins de liquidité à verser dans l'avenir pour rembourser cet emprunt. Selon cette structure, nous prévoyons que ces deux variations seront significatives et positives.

Selon le chapitre 3860,¹⁰ les entreprises doivent dévoiler certains risques encourus par l'entreprise au niveau des instruments financiers. La valeur informationnelle de la divulgation des risques de taux d'intérêts et des risques de crédit a été analysée à l'aide de la cinquième équation. L'inclusion de ces informations aux états financiers a été prescrite afin d'aider les utilisateurs à mieux comprendre et évaluer les risques sur les flux futurs de trésorerie. En se basant sur l'objectif de présentation de cette information, ces variables de risque devraient obtenir des coefficients significatifs.

Analyse descriptive

Tel que précisé plus haut, la présentation des instruments financiers a été prescrite par la norme 3860 de 1996 à 2006, et ce, pour l'ensemble des entités. Afin d'obtenir un nombre considérable d'entreprises de divers secteurs d'activités, nous avons eu recours à la base de données *Cancorp Financials Professional*. Cette base de données classe les entreprises opérant au Canada selon leur secteur d'activité. Le bassin d'entreprises sélectionnées comprend les industries couvrant les secteurs d'activités des codes *Standard Industrial Classification* (SIC) 2000 à 3999. Ce système de codage nous a permis d'isoler les entreprises manufacturières en excluant le secteur des matières premières ainsi que le secteur bancaire. Les observations recueillies pour les années 1998 à 2005 proviennent des entreprises existant en 2005. Pour les observations de l'année 2006, nous avons ajouté les entreprises présentes dans la liste des entreprises manufacturières de la base de données *Compustats* en 2009. Trois critères ont été retenus pour sélectionner les entreprises. Les entités devaient avoir une maison mère au Canada, elles

¹⁰ Norme 3860.57 : Pour chaque catégorie d'actifs financiers et de passifs financiers, constatés et non constatés, l'entité doit fournir des informations sur son exposition au risque de taux d'intérêts. Norme 3860 : Pour chaque catégorie d'actifs financiers, constatés et non constatés, l'entité doit fournir des informations sur son exposition au risque de crédit (ICCA, 1995).

devaient être transigées à la Bourse de Toronto (TSX) et elles devaient présenter leurs états financiers sur la base de données des valeurs mobilières canadiennes SEDAR. Les données de chaque entreprise ont été recueillies manuellement à partir des états financiers et des cotes boursières affichées sur le TSX. Les informations nous permettant de procéder à notre analyse comprennent : la cote boursière du sixième mois suivant la fermeture de l'exercice financier, l'avoir des actionnaires ordinaires, le bénéfice net, la valeur comptable et la juste valeur des instruments financiers ainsi que la présence des notes reliées aux risques de taux d'intérêts et de risques de crédit. Les états financiers proviennent de la base de données SEDAR¹¹ et les cotes boursières ont été recueillies dans la base de données TSX-CFMRC.

Une présentation détaillée de l'échantillon utilisé pour interpréter les résultats se trouve au tableau 1. Selon les critères de sélection, 268 entreprises ont été retenues. La base de données se répartit sur une période de neuf ans. Pendant cette période, des entreprises ont été créées et d'autres ont fusionné ou encore tout simplement fermé. Certains états financiers n'ont pas pu être obtenus à partir de la base de données de SEDAR. Pour certaines entreprises qui ont fermé ou fusionné, il a été impossible de trouver les cotes boursières sur la base de données TSX-CFMRC. De plus, cette base de données est complétée de façon différée, donc au moment de la collecte d'information, les données de 566 observations n'étaient pas disponibles. Cent trente cinq états financiers ont présenté un avoir des actionnaires négatif, ils ont donc été retirés de notre analyse. Tel que mentionné à la note 4, selon le chapitre 3860, une entreprise peut se soustraire de l'obligation de présenter la juste valeur si elle juge qu'elle ne peut établir cette estimation de façon suffisamment fiable. Cette spécificité a été utilisée à 117 reprises pour au moins un instrument financier inclus dans les états financiers de quelques entreprises. D'une année à l'autre, certaines entreprises ont subi trop de fluctuations pour permettre d'établir une relation quelconque entre les variables. Ce phénomène nous a forcé à retirer 22 observations. Ainsi, l'échantillon final totalisait 1559 observations.

Le tableau 2 présente une analyse descriptive des différentes variables utilisées dans cette étude. Selon la période couverte, l'échantillon présente une capitalisation boursière moyenne de 1 469 milliards de dollars et un avoir des actionnaires ordinaires moyens de 640 millions de dollars. Les entreprises ont obtenu des bénéfices moyens de 59 millions de dollars. Ces entreprises possédaient des actifs financiers ayant une valeur comptable moyenne de 326 millions de dollars et des passifs financiers représentant en moyenne 732 millions de dollars en valeur comptable. Les variations obtenues entre la juste valeur et la valeur comptable exposent des médianes à zéro. En effet, la majorité des entreprises n'ont soulevé aucune variation entre la juste valeur et la valeur comptable des actifs et des passifs financiers, soit respectivement 92 % et 75 % des entreprises de l'échantillon.

La relation entre la valeur marchande et les variables explicatives n'est pas linéaire, par conséquent, une correction logarithmique¹² a dû être apportée à l'ensemble des variables, exception faite des variables reliées aux années d'observations et aux deux variables de risques. Ces modifications ont permis d'obtenir des résultats satisfaisants au niveau de la normalité des résidus et des facteurs d'inflation de la variance (VIF).

¹¹ www.sedar.com

¹² Les logarithmes ne peuvent pas s'appliquer sur les valeurs négatives. Cette caractéristique a été considérée pour les pertes et les variations négatives entre la juste valeur et la valeur comptable des actifs et des passifs financiers. Pour ces variables, l'opération logarithmique s'est effectuée comme suit : Valeur négative = -Log(-valeur).

Tableau 1

Composition de l'échantillon

	1998-2006
Nombre d'observations des entreprises répondant aux critères de base	2412
Nombre d'observations correspondant à des entreprises fermées ou non existantes à une date donnée.	(405)
Nombre d'états financiers non présentés sur SEDAR	(11)
Nombre de cotes boursières indisponibles	(150)
Nombre d'états financiers présentés selon les principes généralement reconnus américains	(13)
Nombre d'observations restantes	1833
États financiers ayant un avoir des actionnaires ordinaires négatif	(135)
Observations manquantes dues aux entreprises ayant été incapables d'estimer la juste valeur de certains instruments financiers	(117)
Entreprises présentant des données extraordinaires (fluctuation extrême au niveau des cotes boursières ou des résultats financiers).	(22)
Nombre d'observations restantes	1559

Tableau 2

Statistiques descriptives¹

Échantillon 1998-2006 (n=1561)					
Variable2	Moyenne	Écart-type	Médiane	Minimum	Maximum
VM _{j,t}	1 469 440	4 373 016	147 589	1553	44 039 638
AAO _{j,t}	639 830	1 642 632	89 381	72	13 747 457
BEN _{j,t}	59 426	262 569	3204	-1 026 628	2 971 000
VCA _{j,t}	326 325	914 342	42 615	94	10 405 500
JVA _{j,t} - VCA _{j,t}	1207	13 937	0	-36 285	322 200
VCP _{j,t}	732 390	2 031 327	47 086	321	24 769 700
VCP _{j,t} - JVP _{j,t}	-5218	63 610	0	-638 812	607 300

¹ Les statistiques sont présentées en milliers de dollars canadiens.

² VM_{j,t} = Valeur marchande des actions ordinaires de l'entreprise *j* six mois après la fin de l'exercice financier *t*; AAO_{j,t} = Avoir des actionnaires ordinaires de l'entreprise *j* à la date de clôture des états financiers *t*; BEN_{j,t} = Bénéfice de l'exercice *t* disponible aux actionnaires ordinaires de l'entreprise *j*; VCA_{j,t} = Valeur comptable des actifs financiers de l'entreprise *j* présentée au bilan pour l'exercice *t*; JVA_{j,t} = Juste valeur des actifs financiers de l'entreprise *j* divulguée dans les notes aux

états financiers à la date de clôture t ; $VCP_{j,t}$ = Valeur comptable des passifs financiers de l'entreprise j présentée au bilan pour l'exercice t ; $JVP_{j,t}$ = Juste valeur des passifs financiers de l'entreprise j divulguée dans les notes aux états financiers à la date de clôture t .

Résultats

Rappelons que selon le modèle utilisé, l'avoir des actionnaires ordinaires et le bénéfice expliquent en grande partie la valeur marchande des actions d'une entreprise. Tel que constaté au tableau 3, selon notre échantillon, la valeur marchande est expliquée à 77% par ces variables. L'ajout de la valeur comptable des actifs et passifs financiers dans la seconde équation permet aux variables dépendantes d'expliquer jusqu'à 84% de la variance de la capitalisation boursière des entreprises. L'équation 3 permet de répondre à notre problématique. Pour ce faire, elle introduit les variables de variation entre la juste valeur et la valeur comptable des actifs et passifs financiers. Il a été constaté que la valeur explicative de ces variables est minime puisque la variation du R^2 entre les équations 2 et 3 est seulement de 0,2%. Malgré ce faible accroissement, un test sur les statistiques F maintient que cette variation est significative. Contrairement aux attentes, seulement les variations de passifs financiers ont obtenu une valeur T significative. Conséquemment, selon ces résultats, la divulgation de la juste valeur des instruments financiers est significative pour les utilisateurs des états financiers, mais seulement en ce qui concerne les passifs financiers. Ces résultats appuient la conclusion apportée par Barth et al. (1996) et Eccher et al. (1996) selon laquelle les dettes à long terme sont pertinentes pour les investisseurs. L'étude actuelle a évalué globalement les actifs et passifs financiers. Cependant, la majorité des grandes variations de passifs recensées proviennent de la différence entre la valeur comptable et la juste valeur de dettes à long terme. L'absence de signification au niveau de la variation des actifs contredit, par contre, certains de leurs résultats. En effet, Barth et al. (1996) et Echher et al. (1996) avaient reconnu la pertinence des comptes de valeurs mobilières et des prêts, soit l'équivalence des comptes d'investissements et des comptes clients de notre échantillon. Ces comptes représentaient, du côté des actifs, la plupart des différences entre la juste valeur et la valeur comptable.

Ces résultats peuvent être expliqués en tenant compte des constatations suivantes. Tel que mentionné précédemment, dans le cadre de l'échantillon ayant servi pour les fins de l'étude, la divulgation d'une variation au niveau de la juste valeur et de la valeur comptable des actifs financiers a seulement été présentée dans 8% des états financiers. La situation économique était plutôt favorable pour la période des années couvertes dans la présente analyse, il est donc vraisemblable que la valeur comptable n'a pas été significativement différente de la valeur marchande dans la majorité des états financiers. Ainsi, il est possible que le petit nombre de variations ayant une valeur significative n'est pas permis de cerner d'une manière précise la pertinence des justes valeurs divulguées.

Contrairement à nos attentes, la régression a entraîné un coefficient négatif pour la variable de variation des passifs. Selon ces résultats, il serait plausible de croire que les investisseurs perçoivent positivement une sous-évaluation de la valeur comptable des passifs financiers. Il est, par ailleurs, possible que les utilisateurs évaluent la direction des taux d'intérêts plutôt que la juste valeur présentée. Une analyse future pourrait tenter d'établir une distinction entre les dettes à taux fixes et les dettes à taux variables, expliquant ainsi certaines avenues hypothétiques aux résultats actuels. La juste valeur est calculée en actualisant le capital de la dette plus les flux de trésorerie qui lui sont reliés en fonction du taux d'intérêt en vigueur à la date de clôture des états financiers. Les explications potentielles à ce niveau se distinguent selon le type d'intérêt contracté.

L'interprétation positive d'une sous-évaluation de la valeur comptable des dettes pourrait aussi être expliquée par l'utilisation de taux variables. Lorsque l'entreprise privilégie des taux variables et que le marché ajuste ses taux à la baisse, l'entreprise présente une sous-évaluation de sa valeur comptable. La baisse des taux d'intérêts dans un contexte de dettes à taux variables provoquera une diminution immédiate de la charge en intérêt, donc une réception positive de la part des investisseurs semble

plausible. Dans le contexte des dettes à taux fixe, lorsque le marché subit une diminution des taux d'intérêts, la juste valeur devient aussi plus élevée que la valeur comptable. Deux raisons possibles pourraient expliquer une vision favorable de la part des utilisateurs. D'abord, l'entreprise paye actuellement trop d'intérêts. En revanche, l'ensemble des états financiers permet d'évaluer une amélioration de la qualité de crédit de l'entité, donc les utilisateurs ont une plus grande confiance en l'avenir de l'entreprise. Ensuite, la baisse des taux de crédit et la date d'échéance prochaine de certaines dettes permettent aux investisseurs de prévoir une possible diminution de la charge d'intérêts.

Tableau 3

Pertinence de la divulgation de la juste valeur des instruments financiers

Variable explicatives ¹	Signe prévu	Équations			
		1	2	3	4
LogAAOC _{j,t}	(+)	0,45***	0,50***	0,50***	0,50***
LogBEN _{j,t}	(+)	2,15***	1,30***	1,28***	1,29***
LogBENNeg _{j,t}	(-)	-2,00***	-1,19***	-1,18***	-1,18***
LogVCA _{j,t}	(+)		0,62***	0,62***	0,62***
LogVCP _{j,t}	(-)		-0,47***	-0,47***	-0,47***
Log(JVA _{j,t} - VCA _{j,t})	(+)			-0,01	-0,01
Log(VCP _{j,t} - JVP _{j,t})	(+)			-0,05***	-0,05***
Ra	(?)				-0,01
An _{j,t} - A98	(?)	0,01	0,01	0,01	0,01
An _{j,t} - A99	(?)	0,03	0,03**	0,03**	0,03**
An _{j,t} - A00	(?)	0,01	0,01	0,01	0,01
An _{j,t} - A01	(?)	0,00	0,01	0,01	0,01
An _{j,t} - A02	(?)	-0,04**	-0,03*	-0,03*	-0,03*
An _{j,t} - A03	(?)	0,03*	0,04**	0,03**	0,03**
An _{j,t} - A04	(?)	0,02	0,01	0,01	0,01
An _{j,t} - A05	(?)	0,00	0,00	0,00	0,00
Constante	(?)	1,31***	0,48***	0,51***	0,51***
R2 ajusté		0,773	0,843	0,845	0,845
Variation du R2			0,070	0,002	0,000

*** p ≤ 0,01; ** p ≤ 0,05; * p ≤ 0,1 (test unidirectionnel)

¹ LogVM_{j,t+6} = logarithme de la valeur marchande des actions ordinaires de l'entreprise *j* six mois après la fin de l'exercice financier *t*; LogAAOC_{j,t} = logarithme de l'avoir des actionnaires ordinaires de l'entreprise *j* à la date de clôture des états financiers *t* corrigé de la valeur comptable des actifs financiers et des passifs financiers; LogBEN_{j,t} = logarithme du bénéfice de l'exercice *t* appartenant aux actionnaires ordinaires de l'entreprise *j*; LogBENNeg_{j,t} = variable dichotomique égale à 1 pour une entreprise *j* divulguant BEN_{j,t} < 0, et égale à 0 autrement, multiplié par le bénéfice de l'entreprise. LogVCA_{j,t} = logarithme de la valeur comptable des actifs financiers de l'entreprise *j* présentée au bilan pour l'exercice *t*; VCP_{j,t} = logarithme de la valeur comptable des passifs financiers de l'entreprise *j* présentée au bilan pour l'exercice *t*; Log(JVA_{j,t} - VCA_{j,t}) = logarithme de la variation entre la juste valeur et la valeur comptable des actifs financiers de l'entreprise *j* calculée à partir des notes aux états financiers à la date de clôture *t*; Log(VCP_{j,t} - JVP_{j,t}) = logarithme de la variation entre la valeur comptable et la juste valeur des passifs financiers de l'entreprise *j* calculée à partir des notes aux états financiers à la date de clôture *t*; R^a_{j,t} = variable dichotomique égale à 1 pour une entreprise *j* divulguant son risque de taux d'intérêts pour l'exercice *t* et égale à 0 autrement;

$R_{j,t}^b$ = variable dichotomique égale à 1 pour une entreprise j divulguant son risque de crédit pour l'exercice t et égale à 0 autrement; $AN_{j,t}$ = Variable dichotomique égale à 1 pour l'observation des variables d'une entreprise j , correspondant à l'année t actuellement observée et égale à 0 autrement.

L'inclusion des risques d'intérêts et des risques de crédit dans la quatrième équation ne semble pas ajouter de contenu informationnel. Les coefficients des deux variables sont non-significatifs. SPSS a exclu la variable correspondant aux risques de crédit puisque normalement lorsque l'information sur les risques d'intérêts était présente, l'information sur les risques de crédit l'était aussi. Conséquemment, le logiciel a considéré les deux risques comme une seule variable. Il est donc probable que ces risques donnent les mêmes résultats : leur divulgation n'est pas pertinente pour les investisseurs.

Conclusion

Cette étude avait pour objectif d'évaluer la pertinence de la divulgation de la juste valeur des instruments financiers selon la norme 3860 du manuel de l'ICCA. Selon les résultats obtenus, il semble que la pertinence de divulguer la juste valeur se limite à la catégorie des passifs financiers. En effet, il s'avère que la divulgation de la juste valeur des actifs financiers ne semble apporter aucune information significative aux utilisateurs. Malgré la reconnaissance de la pertinence de la juste valeur des passifs financiers, il semble que l'utilité informationnelle de sa divulgation soit toutefois limitée pour les investisseurs.

Les résultats présentés dans cette recherche doivent être considérés avec retenue. Le seuil de pertinence observé pour la divulgation des instruments financiers représente la vision des utilisateurs d'états financiers provenant d'entreprises manufacturières canadiennes. Tel que décrit précédemment, cette analyse s'est basée sur les entreprises en exploitation en 2005. Face à ce biais de survivance, les résultats pourraient ne pas être représentatifs d'un bassin d'entreprises recueilli une autre année. De plus, lors de la collecte de données manuelles, certains états financiers ne précisaient pas les actifs et passifs considérés comme des instruments financiers. Dans ces conditions, nous avons considéré les postes reconnus le plus couramment comme étant des instruments financiers dans l'ensemble des autres états financiers¹³.

Cette étude se démarque sur plusieurs facettes. Elle est la première étude canadienne à se pencher sur la pertinence de la divulgation de la juste valeur des instruments financiers. Elle se distingue avec un échantillon couvrant neuf années d'observations et en étudiant des entreprises manufacturières de différents secteurs d'activités. Les résultats contribueront ainsi aux connaissances sur les normes canadiennes et permettront de faire renaître les discussions sur la pertinence d'imposer, à l'ensemble des sociétés ouvertes, la divulgation de la juste valeur des instruments financiers. Dans un même cadre, ces résultats peuvent servir d'appui aux réflexions du comité des normes canadiennes afin de réévaluer les estimations de la juste valeur à l'échelle des qualités de l'information devant être respectée dans la composition des états financiers. Ces résultats pourront également aider les entreprises manufacturières à se former une opinion sur l'équilibre avantages-coûts que représente cette divulgation, tout en respectant, les limites énoncées précédemment.

Tel qu'énoncé précédemment, la norme 3860 a été en vigueur de 1996 à 2006. Depuis, cette norme a été remplacée par les chapitres 3861, 3862 et 3863 instruments financiers – informations à fournir et présentation. L'adoption de l'ensemble des nouvelles normes¹⁴ au niveau des instruments

¹³ Les postes retenus sont : trésorerie et équivalent de trésorerie, débiteurs, créditeurs et charges à payer et dettes à long terme, portions court terme et long terme.

¹⁴ Les normes d'application générale reliées aux instruments financiers sont les chapitres 1530, Résultats étendus, 3855 Instruments financiers – comptabilisation et évaluation, 3861 Instruments financiers – informations à fournir et présentation, 3862 Instruments financiers – informations à fournir et 3863 Instruments financiers – présentation.

financiers a provoqué une division des instruments financiers en quatre catégories distinctes ainsi que la présentation des résultats étendus. Il serait donc intéressant, dans un effort d'amélioration continue des normes, d'analyser si ces nouvelles exigences apportent un plus grand contenu informationnel. De plus, à l'aide de la présente étude, il serait possible de faire une comparaison entre la divulgation et la présentation de la juste valeur des instruments financiers et d'en évaluer la pertinence dans une recherche subséquente. Finalement, avec l'arrivée des normes internationales et les changements dans les normes au niveau des instruments financiers, il serait pertinent de nous questionner sur la compréhensibilité des utilisateurs.

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Business History - Histoire des Affaires

ASB 2010
Halifax, Nova Scotia

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THE GENDERED SUBSTRUCTURE OF THE ATLANTIC SCHOOLS OF BUSINESS

The Atlantic Schools of Business (ASB) have been hosting an annual business conference for the past 39 years. This conference does not belong to any one organization and has long been perceived as not having a structure. Further, until 2005, it lacked a standing conference. However, this lack of physical structure does not mean that there isn't a concrete form to the organization. Utilizing Acker's sub-structured framework, not only will the structure of the organization become apparent, but as well the gendered nature.

Introduction

In the feminist research on organizations, it has been illustrated that organizational structures are not gender neutral (Martin, 2004, Acker 1998, Lorber 1994, Acker 1990, Kanter 1977). Rather, organizations are very much gendered, with male dominance and masculinity as the central features associated with power and privilege. One of the goals of feminist research is to surface the inequalities that exist for women and to move towards a more democratic structure in which women are equal members. This is also one of the rationales for this research: to illustrate the gendered nature of ASB so that changes can be made to allow space for women and femininity within the substructure. This exposure of the masculine substructure is one way in which 'the extraordinary persistence through history and across societies of the subordination of women' (Acker, 1990, p 140) can be both recognized and named.

The organizational substructure is composed of a number of aspects that will be analyzed, including: power positions, hierarchy, voices of women and division of labour. By examining the structure of ASB and the gendered processes embedded in the substructure, we will begin to surface the inequalities. These inequalities, whether intentional or not, 'appear to be deeply embedded in social structures and organizational processes' (Martin, 2004, p 1263).

Review of Relevant Literature

The concept of the gendered substructure was first presented by Acker in 1990. Through examining organizations from a feminist perspective, she identified 'a gendered substructure of organizations that operates to help reproduce gender divisions and inequalities' (Acker, 1998, p 197).

The gendered substructure has been supported by many other feminist researchers. Martin (2004) found that there are specific practices within organizations that become routine to organizational members which are also gendered, and are linked to position and power. These gendered social interactions are not always visible to organizational members, and often become accepted actions, rules or procedures.

The invisibility of these practices is explained by Lorber (1994) as 'gender is such a familiar part of daily life that it usually takes a deliberate disruption in our expectations' (p 1) to notice how it is being constructed. As well, we are socialized from an early age for masculine/feminine behaviours and do not notice when our stereotypes or expectations are confirmed. These expectations are also embedded in organizations and their membership. Lorber describes this within organizations as 'a process of creating distinguishable social status for the assignments of rights and responsibilities. As part of the stratification system that ranks these statuses unequally, gender is the major building block' (1994, p 6).

Within the organizational structure, this is represented by positions and roles. There becomes an expectation of who should, on the basis of gender, occupy these roles (Kanter, 1977). This gendered pattern then becomes part of the substructure of the organization.

The substructure also contains aspects related to division of labour. These divisions not only specify what positions are gendered, but the behaviours which are acceptable for those who occupy the position, as well as who has legitimate authority and power. These divisions are continually reinforced and communicated through regular interactions between organizational members. (Acker 1990, Acker 1998, Martin 2004). The 'gender inequalities, gendered images and gendered interactions arise in the course of the ongoing flow of activities that constitute an organization' (Acker, 1998, p198). This is how the gendering of the substructure becomes ingrained and virtually invisible. Therefore, as these gendered distinctions are embedded in the organization, in order to be able to address the substructure, it must first become visible (Martin 2004, Lorber, 1994).

Research Method

Utilizing Acker's (1990) substructure framework, the components of the organizational 'structure' of the ASB will be examined. While this structure will differ from a traditional organizational structure with permanent reporting relationships, there is a hierarchy which is maintained over time. This will be illustrated by an analysis which will show the gendered nature of the roles of the conference organizers, reviewers, authors and others which held a 'position'.

The artifacts of communication related to the conference will be examined, mainly the conference proceedings. The ‘structure’ of the organization from 2000 to 2003 will be compared with the current structure, from 2006 to 2009. An analysis based upon Acker’s (1990) five key areas will build on the gendered information that has already been collected and will identify the nature and components of the substructure.

Constructing a Structure

In order to apply Acker’s model, a physical structure of the conference was constructed by utilizing a traditional organizational structure model. The Conference Chair was put in the highest position from 2000 to 2003, similar to that of the CEO. From 2006 to 2009, the Conference Chair reported to, and was a member of the ASB Executive, similar to that of the CEO reporting to a Board of Directors. The Area Chairs were then the next ‘layer’ and reported to the Conference Chair. These individuals were responsible for a stream of papers. Those who wrote the paper were assigned a position ‘under’ the Area Chair. It should be noted that the assignment of those who wrote papers is in the order of the Conference Proceedings and it not to be taken as any type of representation of importance or priority. All authors occupy the same position which ‘reports’ to the Area Chair. The Reviewers were established as a consulting type of group, as it was not evident in the majority of conferences which stream the Reviewers were involved with. Therefore they are considered to be consultants at an arms length of the organizational structure. As prior to 2005 there was no Executive Committee, there is no basis for comparison.

While it was not possible to determine the relationships that existed between those involved in the conference, it is still possible to construct a structure. For each individual that held a position, wrote or reviewed a paper, they were coded first by gender and second by whether or not they hold a PhD. As Acker’s structure discusses power, this was the measure that was utilized to represent an individual who would be considered, within academia, to possess the highest qualifications. While it is recognized that this may not be the only representation of power, it was one that was widely available for each member and could be applied consistently.

The information that was collected was organized in a number of ways. First, the general structure, which included the gender and qualification of members was constructed. This included the number of papers that were in each stream and the percentage that represented for the year. This information was then classified as to the percentage of papers that each Area Chair was responsible for. The same information was also collected for the authors of the papers, including if they were a single author or had a paper with multiple authors. For those with multiple authors, the first author was also categorized by gender and qualifications.

Within the charts, the gender and qualification was colour coded, in order to provide a visual representation of the structure. Following is the coding that was used:

	Male	Female
PhD	Green	Purple

Non PhD	Blue	Orange
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2000 to 2003: Overview

From 2000 to 2003, the general structure of the conference was relatively unchanging. Each conference had a Conference Chair, Area Chairs and Reviewers. The conference positions of Conference Chair and Area Chairs were largely held by males who possess a Phd. For all of the years, the Conference Chair was male, and at least 70% of the Area Chairs were male. The following table presents the basic structure, as well as the number of papers that each category was responsible for.

Table 1

2000 to 2003 Conference Chairs & Area Chairs

	2000	2001	2002	2003
Conference Chair	1	1	1	1
Co-Chairs	2 Co-Chairs			
Area Chairs:				
Male, PhD	5 - 71%	5 - 71%	8 - 100%	6 - 75%
Male, Non PhD	0	1 - 14.5%	0	0
Female, PhD	2 - 29%	1 - 14.5%	0	1 - 12.5%
Female, Non PhD	0	0	0	1 - 12.5%
Total Area Chairs	7	7	8	8
Number of Papers				
Male, PhD	22 - 92%	24 - 59%	50 - 100%	33 - 77%
Male, Non PhD	0	5 - 12%	0	0
Female, PhD	2 - 8%	12 - 29%	0	5 - 11.5%
Female, Non PhD	0	0	0	5 - 11.5%
	24	41	50	43

From this table, it is evident that the majority of those who were involved within the formal positions of the conference were males. Further, those who did not possess a PhD, whether male or female, are virtually absent from the majority of conferences during the 2000 to 2003 period.

The next table represents the authors of the papers. Again there is considerable consistency within the 4 year time span that was examined. The vast majority of papers with a single author were written by males, and specifically males with a PhD. Women, regardless of qualifications, are under-represented in both the single and multiple author categories.

Table 2

2000 to 2003 Authorship

	2000	2001	2002	2003
Single Author				
Male PhD	3 – 13%	12 – 29%	18 – 36%	11 – 25%
Male non PhD	1 – 4%	4 – 10%	3 – 6%	3 – 7%
Female PhD	0	4 – 10%	4 – 8%	3 – 7%
Female non PhD	2 – 8%	0	0	2 – 5%
Total Papers	6	20	25	19
Multiple Authors				
Male PhD	14 - 58%	9 – 21%	10 – 20%	11 – 25%
Male non PhD	0	4 – 10%	5 – 10%	5 – 12%
Female PhD	1 – 4%	4 – 10%	4 – 8%	5 – 12%
Female non PhD	3 – 13%	4 – 10%	6 – 12%	3 – 7%
Total Papers	18	21	25	24
Multiple Authors, Composition				
Male Only	13 – 72%	10 – 48%	10 – 40%	7 – 29%
Female Only	2 – 11%	1 – 2%	5 – 20%	5 – 21%
Male and Female	3 – 17%	10 – 48%	10 – 40%	12 – 50%

The next classification was based upon stream and the number of papers in each area. For the 2000 to 2003 time frame, this is a manageable chart, however, in order to make the comparison to the 2006 to 2009 time frame, a much larger representation was needed. This is presented in Appendix 1: Program Streams, Area Chairs and Number of Papers Per Stream. It should be noted that the 2000 to 2003 time frame follows the same pattern as above, it is dominated and over represented by males who possess a PhD. This pattern holds for Reviewers in the 2000 to 2003 time frame, as 52% to 74% were males who possess a PhD.

2006 to 2009: Overview

This period represents a 4 year span in which the standing structure for the conference was introduced. This is a significant change over the previous period as it included the introduction of an Executive Committee and saw an explosion of streams, papers and participation.

Table 3

2006 to 2009 Conference Chairs & Area Chairs

	2006	2007	2008	2009
Conference Chair	1	1	1	1
Co-Chairs			1 Co-Chair	
Area Chairs:				
Male, PhD	7 – 37%	12 – 48%	13 – 50%	12 – 43%
Male, Non PhD	4 – 21%	2 – 8%	5 – 19%	11 – 39%
Female, PhD	4 – 21%	7 – 28%	3 – 12%	4 – 14%
Female, Non PhD	4 – 21%	4 – 16%	5 – 19%	1 – 4%
Total Area Chairs	19	25	26	28
Number of Papers				
Male, PhD	12 – 21%	31 – 52%	32 – 58%	25 – 40%
Male, Non PhD	12 – 21%	5 – 8%	8 – 15%	21 – 33%
Female, PhD	20 – 36%	11 – 18%	3 – 5%	13 – 21%
Female, Non PhD	12 – 21%	13 – 22%	12 – 22%	4 – 6%
	56	60	55	63

While all of the Conference Chairs are males who hold a PhD, there is far more representation within Area Chairs for all categories. There is also greater variation in the number of papers that were reviewed, and while for some years the trend of male PhD domination is present, there are significant contributions within other area, both female and non PhD. This trend is also consistent with Reviewers, as there are far more women now participating. The majority of Reviewers are still males with a PhD (40% to 52%) but this is a considerable drop from the previous period.

The following chart represents the first authorship of the papers. Similar to the above chart, there is considerable representation within most of the categories.

Table 4
2006 to 2009 Authorship

	2006	2007	2008	2009
Single Author				
Male PhD	9 – 16%	10 – 17%	8 – 15%	12 – 19%
Male non PhD	8 – 13%	6 – 10%	3 – 5%	13 – 21%
Female PhD	4 – 7%	0	3 – 5%	5 – 8%
Female non PhD	5 – 8%	8 – 13%	4 – 8%	4 – 6%
Total Papers	26	24	18	34
Multiple Authors				
Male PhD	13 – 23%	9 – 15%	13 – 24%	7 – 11%
Male non PhD	9 – 16%	11 – 18%	12 – 22%	9 – 14%
Female PhD	4 – 7%	1 – 2%	3 – 5%	9 – 14%

Female non PhD	6 - 10%	15 – 25%	9 – 16%	4 – 6%
Total Papers	32	36	37	29
Multiple Authors, Composition				
Male Only	8 – 25%	10 – 28%	10 – 27%	3 – 10%
Female Only	4 – 13%	11 – 31%	5 – 13%	11 – 38%
Male and Female	20 – 62%	15 – 41%	22 – 60%	15 – 52%

The Analysis

Acker's (1990) gendered substructure specifically examines five key areas in order to determine if an organization is gendered. Ideally, there would be information available on how positions are filled, existing relationships and communications within the structure. However, due to the unique situation presented by a standing conference, all aspects of each of the sections of the model will not apply. Fortunately, there is enough information present within the conference proceedings to be able to utilize the main concepts.

Acker (1990) outlines five processes by which the gendering of organizations can be assessed. The first relates to division of labour which she states are clearly evident in most organizations. This is one of the reasons why the visual construction of the conference and those who held positions was necessary. From the multi-year view of the conference, it is clear that there has consistently been a male Chair for all of the examined years. Further, from 2000 to 2003 the Area Chair position is also gendered, again occupied by a male with a PhD. With men occupying the positions of power, this pattern is often maintained. Within the 2000 to 2003 period, not only were these individuals in these positions, they frequently occupied them for multiple years or moved from stream to stream. The visual representation of the organization from 2006 to 2009 has changed significantly. While the Chair position is still occupied by men, there is greater variety within Area Chair positions and within Reviewers. The reasons for this drastic change are unknown. One significant difference between the two time periods is the number of Area Chairs. In 2000 to 2003, there were 7 or 8 Area Chairs. This number has almost tripled, as there are now 19 to 28 Area Chairs. While men still occupy the majority of Area Chair positions, there has been some increase in the number of women who hold these positions. From 2000 to 2003, the average percentage of Area Chairs that were female was 17.25%, resulting in over 82% of the Area Chairs being male. From 2006 to 2009, the average percentage of Area Chairs that were female was 33.75%, resulting in over 66% of male Area Chairs. Given the short time frame that was examined, there is clearly a space that has been created for women within the physical structure.

Ackers second area of analysis is related to symbols, which can reinforce the divisions of labour. Due to the nature of the organization, the majority of symbols are not visible. However, one symbol which can be assessed is whether or not the individual holds a PhD. Within academia, this is considered to be almost a required symbol for credibility. Further, this symbol is often represented within the papers and conference proceedings by the title of the individual. As a symbol, the possession of a PhD is clearly valued as all Chairs possess a PhD. It could be assumed that this symbol lends credibility to both the positions and the conference. For the Area

Chairs, from 2000 to 2003, this figured ranged from 85.5% to 100%. From 2006 to 2009, it was 57% to 76%. Again, this is a significant shift, especially considering the small time frame in which these changes occurred. However, it should be noted that there are still a predominance of men in this category. From 2000 to 2003, the Area Chairs with a PhD occupied 71% to 100% of the positions. From 2006 to 2009, the range dropped to 37% to 50%. This trend is also consistent with authorship. Of those who were single authors or first authors, from 2000 to 2003 it ranged from 69% to 75%, with 50% to 71% being male. For the 2006 to 2009 period, the range was 34% to 53%, with 30% to 39% being male. It would be expected that within an academic conference that the majority of authors would possess a PhD. The current years indicate that there may be a trend towards a more open conference, as there are clearly designed areas for student contributions.

Acker's third area is focused on interactions between men and women. Again, it is not possible to completely assess this area as evidence of the physical interactions are not available. However, it is possible to extend this idea to the authorship of the paper. For example, for each year, there are more first authors that are male than female. Within papers with more than one author males with a PhD again dominate. One trend that is evident is the change in the composition of the multiple author papers. Between 2000 and 2009 there has been a consistent reduction in male only groups, and an increase in mixed gender groups.

For Acker's fourth area, it is necessary to see how the above processes reinforced the identity of the individual, as impacted by the structure. She states that it may include "choice of appropriate work: (p 147) as a component. While it is not possible to look at the other aspects of this category, it is feasible to examine streams in which women are clearly absent. Within certain areas, the gendering is extremely prevalent. For example, there has never been a female Area Chair in Finance, Operations/ ACORS, Economics or Strategy. There is also a predominance of male authors within these areas. Women have always been the Area Chair for Cases, and are more represented in Organizational Behaviour, Management, Management Education, Tourism and Marketing. It is interesting to note that these divisions are consistent with that found in a traditional organization, where men occupy the top positions in line functions, and women in the secondary, support functions.

The final section Acker identifies is related to organizational logic. From the limited information available, it is very difficult to assess this area. She presents the idea of hierarchies being taken for granted. Although information is limited, there are some questions that arise: Is it assumed that the Conference Chair should be male? Are the more 'prestigious' areas those which are occupied by men, and is it assumed that a male will occupy this position? Are there different statuses that are assigned to different streams and what is the resulting gendered assumption?

Conclusion

The ASB Conference has experienced a rapid change over the last five years. The formalization of the conference and structure appear to have created more physical space for women. There have been some significant changes in the availability of positions that has allowed for increased participation for women. However, by utilizing Acker's model, the gendered nature of the conference becomes visible. Men occupy the top 'position' and most likely are largely

represented, perhaps over represented in certain areas. As these areas mimic that of business, it is assumed that men occupy the most prestigious and valued positions within the organization.

Additionally, men are still more dominant in the areas of single authorship and first authorship. These observations combined, show ASB as a highly gendered organization. However, there have also been very significant changes and it appears that space is being created for a wider variety of participation.

While this analysis shows a clearly gendered organization, it is important to note that there was a female Conference Chair in 2004 and that this current and coming year will also see a female occupy this role. This may indicate that there are continued changes happening within the substructure of the conference, and it certainly is a positive move in a new direction that may open more opportunities for increased female representation.

Appendix 1

Program Streams, Area Chairs and Number of Papers Per Stream

	2000	2001	2002	2003	2006	2007	2008	2009
Finance	10	5	5	6	5	3	9	8 _{co-chair}
Accounting		5	6	8	2	3	4	4
Operations/ACORS		5	6		4	4	3	2
Information Systems	2	3	5	4	5	5	2 _{co-chair}	4
OB	2				3	3	3	3
HR					2	3	2	5
IR						0	2	0
Entrepreneurship	2			3	3	1	0	4
Management		12	9 _(co-chairs)	10	9	0	0	0
Management Education		4	12	5	6	5	3	5
Marketing	3	7	7	5	4	4	3	4
Tourism	5			2	3	2	0	0
Organizational Theory	0				0	3	3	3
Economics					0	0	0	1
Cases					4	10	7	6
Student Cases						0		Co-chair
Gender & Diversity					3	3	0	2
Business History					0	5	3	2
ASB History							3	1
Strategy					1	1	3	3
Business Law					2	2		2
Undergrad Papers					3	3		0
Social Responsibility							3	0
Privacy							0	1
Doctoral Consortium								
Teaching Track								2
Poster Session						Co-chair		
Total Area Chairs	7	7	8	8	19	25	27	28
Total Papers	24	41	50	43	59	60	55	63
Average Paper/Chair	3.4	5.9	6.3	5.4	3.1	2.4	2.0	2.3

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ABORIGINAL FINANCE AND REGULATION – WHAT ARE THE REGULATORY IMPEDIMENTS TO ESTABLISHING AN ATLANTIC CANADIAN ABORIGINAL FINANCIAL INSTITUTION?

We explore the regulatory and legislative barriers to addressing accessibility of capital for First Nations businesses and communities in Atlantic Canada. Specifically we examine what, if any, legal and regulatory impediments exist that may have a bearing on the ability of the Atlantic First Nations to establish an Aboriginal owned financial institution.

Introduction

Financing is a necessary component to most businesses regardless of size. In theory and practice, it is uncommon for a business to have enough capital to satisfy all needs that come with asset ownership. Capital can be used for a wide variety of activities during the start-up phase of a company including equipment and inventory purchases as well as general marketing purposes. A properly financed business in many instances becomes more profitable than the business trying to operate through non-financed capital.

In the First Nations business community, there has been a stated gap between the need for financing and the accessibility of capital. This issue was publicly debated during 2007 proceedings of the Standing Senate Committee on Aboriginals People (Standing Senate Committee on Aboriginals People, 2007). Collateral and capital, as Chiste (1996) outlines, continues to be the component that negatively impacts the gap between access to capital as well as the need for financing (Chiste, 1996 p. 122). There also exist additional factors which lead to this gap such as corporate experience and the education of entrepreneurs (Anderson et al. 1995).

In this paper, we examine access to capital for Aboriginal peoples as well as the means to address financing through establishing an Aboriginal owned and operated financial institution. We explore the specific legislative and regulatory impediments to providing access to capital for First Nations communities and businesses. Specifically we examine what, if any, legal or regulatory impediments exist that may have a bearing on the ability of the Atlantic First Nations to establish an Aboriginal owned financial institution within Atlantic Canada.

Background

Regardless of the evolution of a company, capital is required to maintain its operations. Funds may be required at the start-up phase for purchases of equipment and inventory, product development as well as staffing costs. Capital will also be required for leasehold improvements and the funding of accounts receivable as the business grows. Capital is usually accessed through two methods: debt financing or equity financing.

Debt financing is required for two purposes: financing of short term (current) assets and the financing of long term (fixed/capital) assets. Financing short and long term assets becomes difficult for Aboriginal peoples to obtain due to the issue of financial institutions securing on-reserve assets (Government of Canada, 2009). This impacts the growth of First Nation businesses and communities which are unable to finance their operations through their own cash flow.

In Canada, a study by Statistics Canada found that 80% Aboriginal business owners indicated that they need less than \$50,000 to start their business. The study also found that the proportion increases to 90% for technical and professional companies (Statistics Canada, 2004). Debt and equity financing needs are similar for both Aboriginals and other Canadian businesses. In the study, 89% of Aboriginal businesses use debt financing (90% for Canadians) and 77% use equity financing (74% for Canadians) (Statistics Canada, 2004). Specifically, in a study by Heidrick and Nicol (2002), it was found that Aboriginal entrepreneurs used the following debt financing sources:

- 48% Personal loans from family and friends (interest bearing loan)
- 30% Supplier credit
- 22% Loans from Aboriginal lending institutions
- 20% Commercial bank loans (non-guaranteed)
- 15% Government guaranteed bank loans
- 11% Conditional sales contracts

As well, as outlined in the same study, equity financing was accessed through:

- 88% Personal investment
- 31% Retained earnings
- 21% Family and friends
- 7% Community investment funds
- 5% Venture capital

A further study by Caldwell and Hunt (2002), showed that 56% of Aboriginal entrepreneurs studied had inadequate access to debt for the following reasons: lack of collateral (40%); inability to use on reserve assets as collateral (30%); no local financial institutions (27%) and lack of profitability (22%). Reasons for inadequate access to equity included: lack of personal resources (58%); unavailability of venture capital

(36%); inadequate retained earnings (32%); absence of community investment funds (31%) and inability of family/friends to invest (16%) (Caldwell and Hunt, 2002 p. 17).

The context the equity capital sources available, as outlined by Heidrick and Nicol's (2002) study, is interesting. According to Anderson et al. (2005), since Aboriginal people want to do business on "their own terms" the 5% usage through venture capitalists is not surprising. Typically venture capitalists control about one-third of the seats on a start-up's board of directors, and often represent the single largest voting block on the board (Berk et al., 2010). The need for ownership on behalf of Aboriginals and the subsequent emerging conflict with venture capitalists need for control may present challenges.

The motivation for establishing a business is also a determinate in how much capital is needed. When deciding to venture into a new business many motives exist for the owner whether it is internally (i.e. personal drive) or externally focused (i.e. profit driven) (Jaffe et al. 2005). Aboriginal business people are no different in their motivations but the belief is that their fundamental motive is to satisfy the socio-economics of their communities. Anderson et al. (2005) state that economic development is seen as part of the larger agenda of rebuilding indigenous peoples' communities and nations and reasserting indigenous control over their traditional territories. Anderson (1999, p. 14) also suggests that Aboriginals are creating businesses to compete in the global economy for wealth generation which would help support self-government and socio-economic conditions.

Aboriginals also bring a community-oriented view to economic development. They see the economy and social life as being intricately tied together (Standing Senate Committee on Aboriginals People, 2007 p. 4). The community view is reiterated by Aboriginal owners surveyed in the 1996 Aboriginal Business Survey. Over 50% stated that service to the community was the primary goal (Statistics Canada, 1999 p. 3). Culture is also seen as a vital component to their development. Moreover, Aboriginals are not willing to compromise their identity for economic success. The Dogrib Treaty 11 Council told the Standing Senate Committee on Aboriginal Peoples, that they are not prepared "to give up who we are in order to gain from economic development." They added that "we do not want to lose our traditions, culture, language or religion" (Standing Senate Committee on Aboriginals People, 2007 p. 5).

Ownership of financial institution to assist in economic development is a key point for Aboriginal peoples. During the Standing Senate Committee on Aboriginals People proceedings, Allan Luby established the importance of culture as a part of ownership. He stated:

"Over this last 20 years, I have watched our youth take over the majority of our people. When I look into the eyes of our young people nowadays, I see a passion. They want to move ahead, but they are also becoming very impatient with things. They want to see

these social and economic drivers there for the communities, to raise the level of the communities to that of the rest of Canada.” (Standing Senate Committee on Aboriginals People 2007 p. 6)

While ownership is a key element, the structure of an Aboriginal financial institution to achieve social and economic development is also critical. In Canada, federally regulated financial institutions include banks, trust and loan companies, insurance companies and brokerages. Structure is usually dictated by adherence to enabling legislation i.e. The Bank Act; The Trust and Loan Companies Act; The Insurance Act; and The Brokerages Act. The legislation creates different financial services structures. Financial services institutions are also responsible to adhere to the requirements of several other pieces of legislation and regulations. This requires regulatory compliance where failure to do so would impact the institutions ability to operate as well as its reputation.

Ultimately the question of whether an Aboriginal owned financial institution is achievable rests on the ability whether it is regulatory or legislatively possible.

In order to address this question, a participatory research project consistent with Reason and Rowan (1981) and Reason and Bradbury (2001) was conducted with an Aboriginal group in Atlantic Canada. The research question was to determine whether an Aboriginal owned financial institution could be established and what form it would take.

Methodology

The United Nations Economic and Social Council (2010) states that defending the research practices and outcomes of Indigenous peoples is a highly contested area in academia, where Indigenous peoples struggle to have their traditional knowledge and world views recognized¹. Complications emerge when researching Indigenous people because it is a question of viewing not only Indigenous rights and business from a detached, analytical (some would say Western) framework. Rather it is important to incorporate the participative into any research done with Indigenous people.

There is little debate that Indigenous groups face systematic challenges in terms of addressing poverty, overcoming economic developmental challenges and increasing the standard of living within Aboriginal communities. As described the Secretariat of the Permanent Forum on Indigenous Issues in a 2004 workshop on data collection and disaggregation for Indigenous peoples by the United Nations, considerable thinking and debate have been devoted to the question of defining ‘Indigenous peoples’, but no such definition has ever been adopted by any United Nations system body².

¹ Indigenous Peoples: Development with Culture and Identity: Articles 3 and 32 of the United Nations Declaration on the Rights of Indigenous Peoples. Report on the international expert group meeting. United Nations Economic and Social Council 2010 E/C.19/2010/1. P.6

² <http://whc.unesco.org/uploads/activities/documents/activity-496-6.pdf>

One of the most cited descriptions of the concept of the Indigenous was given by Jose R. Martinez Cobo, the Special Rapporteur of the Sub-Commission on Prevention of Discrimination and Protection of Minorities, in his Study on the Problem of Discrimination against Indigenous Populations³. In this study, he offered a working definition which stated that

“Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system”⁴.

It is important to contrast Indigenous people with the phrase ‘Aboriginal peoples’. The phrase ‘Aboriginal Peoples’ is a collective name for the original peoples of North America and their descendants. For the purposes of this paper, we will use the phrase interchangeably although the data presented in the participatory research study primarily refers to Aboriginal groups in Canada.

Indigenous peoples are also interesting (and difficult to study) from an academic perspective because they are not a homogenous group. For example, the Canadian constitution recognizes three groups of Aboriginal people: Indians (commonly referred to as First Nations), Métis and Inuit. These are three distinct peoples with unique histories, languages, cultural practices and spiritual beliefs. More than one million people in Canada identify themselves as an Aboriginal person, according to the 2006 Census⁵.

In Canada and elsewhere, Aboriginal communities are located in urban, rural and remote locations. In Canada they include:

- First Nations or Indian Bands, generally located on lands called reserves;
- Inuit communities located in Nunavut, NWT, Northern Quebec (Nunavik) and Labrador;
- Métis communities; and

³ UN Doc. E/CN.4/Sub.2/1986/7 and Add. 1-4.

⁴ UN Doc. E/CN.4/Sub.2/1986/7 paragraphs 379-382.

⁵ <http://www.ainc-inac.gc.ca/ap/index-eng.asp>

- Communities of Aboriginal people (including Métis, Non-Status Indians, Inuit and First Nation individuals) in cities or towns which are not part of reserves or traditional territories.

While the focus of this paper was on the regulatory structural requirements in establishing an Aboriginal owned financial institution, the data came from a much wider survey that was done as a piece of participatory research during 2007-2010 with Unlooweg Development Group, an Aboriginal owned financial institution where the focus of the participatory research was on the First Nations within Atlantic Canada.

There are thirty three First Nation communities in Atlantic Canada distributed throughout four provinces. Each First Nation is autonomous and governed by an elected Chief and Council. The elected Chiefs and Band Councils of individual First Nation Bands are the basis of the political structure in Atlantic Canada.

All of the First Nation communities in Atlantic Canada belong to the Atlantic Policy Congress of First Nations Chiefs (APC). The APC Secretariat is a Policy Research and Advocacy Secretariat for 33 Mi'kmaq and Maliseet and Passamaquoddy Chiefs, Nations, and Communities in Eastern Canada.

The First Nations in Atlantic Canada are an interesting group to study because their structure and peoples are indicative of the wider Aboriginal community in Canada. In Atlantic Canada, there are communities which have self-governments agreements, land claim settlements, tribal councils, landless bands etc. Business enterprises range from those owned by governments with millions in assets to small entrepreneur operations with one employee. Communities exist within urban boundaries, in proximity to large urban centres and in remote coastal and inland communities. Consumers belong to many different Aboriginal groups and have widely varying forms of employment, education and housing.

The wider participatory research project came from an idea in 2004 of establishing an Aboriginal Financial Services Holding Company. The idea was originated by the partner in the participatory research, Unlooweg Development Group (UDG), as a means to explore potential Aboriginal involvement in the financial services sector. Unlooweg has been providing loans and business services to Aboriginal entrepreneurs in Atlantic Canada since 1986. With representatives in New Brunswick, Newfoundland & Labrador and Nova Scotia, its stated mission is to offer convenient, personalized service to its clients to help them succeed. Unlooweg's lending services bring financial support for First Nations businesses who may not be eligible for loans through other lending institutions. It aims to fill the needs that Aboriginal business owners have in accessing business loans and services in Atlantic Canada (Unlooweg, 2008).

In 2006, a Market Demand Study (MDS) proposal to study the feasibility of an Aboriginal financial services institution in Atlantic Canada was prepared by UDG. In December 2006, the Minister of Indian and Northern Affairs Canada announced funding for the Study. As outlined in the MDS document, the studies' objectives were as follows:

- Conduct an assessment of the financial services needs of the Aboriginal community in Atlantic Canada
- Examine the experience of other Aboriginal groups and institutions who have been involved in similar undertakings;
- Analyze the requirements of capital markets and regulatory institutions; and
- Conduct an assessment of potential ownership and operational models of various financial institutions including legislative and operational requirements.

One of the authors of this paper then became involved as researcher in the project. He worked with Ulnooweg to ensure that conclusions on the demand for financial services were appropriate. Moreover, he took a participatory research approach (cf. Reason and Rowan, 1981; Reason and Bradbury, 2001) where the focus was to understand the context that Aboriginal communities and businesses are facing in respect to economic and business development.

There was also a legislative and regulatory review which forms the critical elements that need to be considered in the development and structure of any Aboriginal financial institution.

Discussion and Findings

The first legislative issue to address in obtaining capital and establishing a financial institution for Aboriginal people is the Indian Act.

The Indian Act

First enacted in 1876, the Indian Act is a federal statute that regulates Aboriginal people, their lands and their economy in Canada (The Native Investment and Trade Association, 1996 p. 23). Unfortunately the law that was meant to protect First Nations people has resulted in an obstacle to economic development. A large part of the Indian Act's purpose is to protect reserve lands. Section 29 states "Reserve lands are not subject to seizure under legal process." (Government of Canada, 2009 p. 20). Section 37 states that:

(1) Lands in a reserve shall not be sold nor title to them conveyed until they have been absolutely surrendered to Her Majesty pursuant to subsection 38(1) by the band for whose use and benefit in common the reserve was set apart.

(2) Except where this Act otherwise provides, lands in a reserve shall not be leased nor an interest in them granted until they have been surrendered to Her Majesty pursuant to subsection 38(2) by the band for whose use and benefit in common the reserve was set apart. (Government of Canada, 2009 p. 23)

Section 89 has been deemed as the part of the Indian Act that has limited First Nations to borrow and financial institutions to lend. It states:

(1) Subject to this Act, the real and personal property of an Indian or a band situated on a reserve is not subject to charge, pledge, mortgage, attachment, levy,

seizure, distress or execution in favor or at the instance of any person other than an Indian or a band. (Government of Canada, 2009 p. 54)

Suppliers of goods, services and capital are hesitant to provide consumer credit and credit for developments on reserve, strictly because of the restrictions found in the Indian Act (The Native Investment and Trade Association 1996 p. 23).

Amendments have been made to section 89 that have eased restrictions on seizure of assets:

(1.1) Notwithstanding subsection (1), a leasehold interest in designated lands is subject to charge, pledge, mortgage, attachment, levy, seizure, distress and execution. (2) A person who sells to a band or a member of a band a chattel under an agreement whereby the right of property or right of possession thereto remains wholly or in part in the seller may exercise his rights under the agreement notwithstanding that the chattel is situated on a reserve. (Government of Canada, 2009 p. 54)

As Chief Palmantier of Lake Babine First Nation said “People cannot access capital locked in their homes to help finance their businesses” (Standing Senate Committee on Aboriginals People, 2007 p. 32). This directly relates to the continued restrictions that the Indian Act imposes on the First Nations people and its presence as a factor to developing an Aboriginal owned and controlled financial institution across Atlantic Canada.

Other impediments also exist because of the Indian Act. A prime example is taxation. For non-Aboriginal businesses in Canada there is great benefit to become incorporated mainly due to lower taxation. For First Nation businesses it is often more beneficial to be unincorporated, since individuals on reserve are exempt from income taxes under section 87 of the Indian Act. Corporations are not considered to be Indians, despite the fact that the shares are owned by on reserve Aboriginal people, and therefore are subject to tax. It is also important to note that businesses located off-reserve whether it is a sole proprietorship or a non-band owned incorporated company, are subject to income taxes (Chiste, 1996).

Legislation for Financial Institutions in Canada

There are also a number of pieces of legislation that is specific to the financial services industry that have to be considered in developing the structure of an Aboriginal financial services institution. The primary federally regulated financial institutions and commonly used by Aboriginal groups are banks and trust companies. Banks are incorporated under The Bank Act and must adhere to all the legislative requirements of that Act and the regulations passed pursuant to that Act. Similarly, trust companies that operate extra provincially are incorporated under the Trust and Loan Companies Act as well as the regulations passed pursuant to that Act.

Other legislation that impact on both of these institutions includes:

- (a) Personal Information Protection and Electronic Documents Act;

- (b) Financial Consumer Agency of Canada Act;
- (c) 1. Proceeds of Crime (money laundering) and Terrorist Financing Act and Regulations;
- 2. Suspicious Transactions Regulations under this Act;
- 3. United Nations Suppression of Terrorism Regulations;
- 4. Criminal Code of Canada s.83.08 to 85.11
- 5. OSFI Guideline B8: Detering and Detecting Money Laundering;
- (d) The Competition Act;
- (e) The Pension Benefits Standards Act;
- (f) The Income Tax Act – RRSP;
- (g) The Trustee’s Act of Various Jurisdictions in the case of Trust Companies; and
- (h) Provincial Regulations and Licensing Bodies / Employment Standards.

Regulatory compliance is also a key issue. Compliance regulations that have to be addressed by banks and trust companies include:

- (a) Both institutions must adhere to the Bylaws of the Canada Deposit Insurance Corporation;
- (b) CICA Handbook:
 - 3025 impaired loans
 - 3860 financial instruments
 - well being reporting requirement
- (c) Statistics Canada
- (d) Canadian Payments Association
- (e) Interac Security Compliance

All of these various requirements of the legislation and contractual compliance are enforced through the Office of the Superintendent of Financial Institutions (OSFI). Institutions are required to file compliance reports on each of these areas on an ongoing and regular basis. In addition to its regulatory role, OSFI must approve the initial business plan of the institution including its lending policies. These are monitored on an ongoing basis and OSFI has the power to alter the capital reserve requirements and liquidity levels if they are not satisfied with any aspect of the performance of the institution.

Generally, there are no set minimum capital requirements for banks or trust companies in the Acts. But they are required to maintain adequate capital and appropriate forms of liquidity. Guidelines set by OSFI for capital adequacy are taken from the BASEL II Framework for Regulatory Capital which is an internationally agreed upon standard for regulatory capital and risk management. Minimums are set to protect creditors, depositors and stakeholders in case of liquidation.

Federally regulated financial institutions are very complex, may be costly to start up and maintain as well require highly technically skilled individuals to manage them. From our review, it is clear that there are no legislative impediments that would prevent the Atlantic First Nations from starting a bank or a trust company. The question would be the operational risk elements that would have to be addressed as well as where to access the necessary funding to meet the capitalization requirements under the Banking Act. While

the specific types of operational risk are outside the scope of this paper, other organizations forms may pose less risky and more conducive to establishing an Aboriginal owned and controlled financial institution as well as meeting capital requirements.

Credit Unions

In our review of Aboriginal banking institutions, it was quite apparent that the normal form of Aboriginal financial institutions was a credit union (cf. UDG 2008). However, as credit unions are provincially regulated, questions emerged as to whether it could be done on a cross-provincial basis which would be consistent with the population demographics of the Aboriginal peoples. A review of the legislation that govern credit unions in each of the four Atlantic Provinces was done in an effort to determine whether a single credit union incorporated in any one of the four provinces could provide services to bands that reside outside the incorporating province.

The primary purpose of a Credit Union is mutual self help although in reality their activities are banking. The philosophy of mutual self help is consistent with the objectives of Aboriginal peoples. The dominant legislation in each province that enable and govern the operation of Credit Unions are their respective Credit Union Acts cited as follows:

- a) Nova Scotia – The Credit Union Act 1994, C.4
- b) New Brunswick – The Credit Union Act Chapter C-32.2
- c) Prince Edward Island – The Credit Union Act Chapter C-29.1
- d) Newfoundland – The Credit Union Act Chapter C-37.1

Other Legislation that impacts on the operation of Credit Unions include;

- a) Provincial Municipal tax legislation;
- b) Workers Compensation;
- c) Evidence Act in case of civil litigation;
- d) Federal Income Tax Legislation;
- e) Federal Anti-Money Laundering Legislation;
- f) Criminal Code of Canada

It is important to note that the main difference between banks and credit unions is that banks are federally regulated and credit unions are provincially regulated. There are provisions within the legislation governing each of the four Credit Unions Acts that make provisions for banking operations that are regulated federally through the Offices of the Superintendents of Credit Unions.

In each Act there are rules governing liquidity, capital maintenance, asset and risk management. There are also Credit Union Deposit Insurance Corporations set up in each jurisdiction to protect depositors and in most respects these mirror the protections offered to depositors in banks by the Canada Deposit Insurance Corporation. The legislation is designed to provide a secure environment to conduct financial transactions in a highly provincially regulated environment with

a view towards protecting the depositors. The fact that a credit union may be Aboriginal owned is unlikely to change any of these requirements.

Issues of geography and provincial boundaries complicate the development of an Atlantic credit union for Aboriginal peoples. Each piece of legislation is different but has similar elements. For example, a credit union operating legally within Nova Scotia must incorporate under the Credit Union Act of Nova Scotia. The requirements of the application for incorporation are enumerated on Part III of the Act, under Section 5. This section specifies that there must be ten or more individuals named in the application; approved bylaws; and a business plan that meets with the approval of Superintendent. At the same time, similar requirements for incorporation can be found in the legislation of each of the other provinces with slight variations such as the numbers required in the initial application. In New Brunswick under Section 6, ten or more individuals are required to be named in the application for incorporation. In Newfoundland Section 6(1) specifies that twenty or more persons are required and, in Prince Edward Island, under Section 4(1) fifty or more individuals are required.

The main issue surrounding setting up a single credit union to serve all Bands in the Atlantic Provinces is the regulatory requirement of having to incorporate under each provincial Act. In addition, in our review, there is a restrictive tenor of the legislation requiring incorporation and limiting the capacity of the credit union to act only within the incorporating jurisdiction's territory. Each Act generally maintains that only credit unions that incorporate under the Act (each province) can operate as credit unions within a province. For example, in New Brunswick, the legislation states in Section 5

No person not incorporated or continued as a credit union under this Act shall carry on the business of a credit union in New Brunswick.

The same holds true for Newfoundland s.5 as well as PEI s.2

Nevertheless, the following wording can be found in each of the Provincial Credit Union Acts with minor variations in some.

Nova Scotia s.15

Subject to this Act, a credit union may, with the approval of the Superintendent carry on its business, conduct its affairs and exercise its powers in any jurisdiction outside the province to the extent that the laws of that jurisdiction permit.

Similar or identical wording is found in New Brunswick's Act in s.17; in Newfoundland's Act s.17; and, in PEI's Act in s 11(2).

The Nova Scotia legislation allows credit unions incorporated under other jurisdictions to operate within Nova Scotia for limited purposes.

s.140 A credit union incorporated under the laws of a jurisdiction other than Nova Scotia may, if so authorized by the laws of that jurisdiction and upon filing with the Superintendent such documents and other materials as the Superintendent may require, become registered in that province for certain limited purposes approved by the Superintendent, but in no case shall the credit union be permitted to carry on in the province the ordinary business of deposits and loans.

Similarly in Prince Edward Island.

s.159

(1) Subject to subsection (2), no extra-provincial credit union shall carry on business in Prince Edward Island except to

(a) register pursuant to applicable legislation of Prince Edward Island a security that was lawfully taken by it as part of a transaction conducted in and under the laws of another jurisdiction;

(b) realize such security, take title to and possession of the property secured, register and hold title pending the disposal of the property and dispose of the property in accordance with the law of Prince Edward Island; and

(c) transact business that is incidental to any business referred to in clause (a) or (b).

(2) An extra-provincial credit union may enter into an agreement, directly or indirectly, with a Prince Edward Island credit union for the purposes of permitting its members to transact business with it by means of automated teller equipment or other electronic facilities located in Prince Edward Island. 1992, c.14, s.159.

If a Nova Scotia credit union wants to do business outside Nova Scotia it too requires approval from the Superintendent notwithstanding s.15.

s.141 With the approval of the Superintendent, a credit union may carry on business under the laws of a jurisdiction other than Nova Scotia.

Also under the Nova Scotia Act s 56(4) states:

A credit union may not be a member of another credit union.

Similar clauses are found in the New Brunswick Act in s 60(4) and in the Newfoundland Act s 59(5).

These provisions would preclude a New Brunswick incorporated credit union joining a Nova Scotia incorporated credit union to become a single entity. Ultimately these provincial jurisdictions may be a hindrance to developing an Aboriginal owned financial institution across Atlantic Canada.

Conclusion

Banking which occurs inter-provincially is federally regulated and that which occurs only within a province is regulated by that province. The scheme of provincial legislation discourages provincially regulated financial institutions such as credit unions from operating extra-provincially. Under the existing legislative regime it would not be possible to incorporate in one province, be regulated under that Act and carry on business in the same capacity in the other Atlantic Provinces.

Can a creative solution be found for Aboriginal peoples? It cannot be done under the current legislative and regulatory regime but, some form of political compromise might be negotiated through bodies such as the Council of Maritime Premiers. It may be possible to exempt an Aboriginal Credit Union, with unique membership characteristics (i.e. Bands) from the restrictive provisions of the various Acts and to allow proportionality with respect to the protection of deposited funds.

Apart from dealing with organization form, the Canadian government and the Aboriginal population must discuss whether the intended purpose of the Indian Act is in fact a benefit to the First Nations people of today. The Indian Act may have provided great benefit to the people it was intended for but it now has greater impact on economic development. Without the required flexibility, the social causes around access to capital that have plagued the First Nations for years could continue.

There also needs to be a reassessment of business risk as it pertains to Aboriginal access to capital within financial institutions. It would be expected of institutions to reassess the risk if there were changes to the Indian Act. However, it would be unlikely for lenders to change their policies and their assessment of risk without amendments to the Act. On the other hand if desirable changes are made, then institutions will be forced to reconsider its current assessment of business risk for Aboriginal peoples.

To implement these recommendations will involve dedication from the many stakeholders including the various levels of government, financial institutions and most importantly the First Nations people. Changes are being made. Recently First Nation businesses in other parts of Canada received news in their goal to narrow the financing gap. On July 20, 2009 the Government of Canada announced a new funding arrangement with Quebec based Desjardins Group to provide increased business financing options for the First Nations people of Quebec. Three million dollars will be provided through the Loan Loss Reserve Initiative which works by offsetting a portion of the lenders risk to First Nation businesses. This will reduce the financial risk of lending to on-reserve First Nation businesses (Indian and Northern Affairs, 2009).

The form of a financial institution is just one challenge to Aboriginal peoples and access to capital. Throughout this paper many issues became evident as to the reasons for the difficulty in obtaining capital for Aboriginal entrepreneurs and communities. Due to the magnitude of this issue and the volume of people impacted, one simple solution is likely non-existent. Despite this statement, legislative and regulatory review as a first step would result in the First Nations people having greater access to capital and increased prosperity through economic development.

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ENTREPRENEURSHIP COMES WITH LEGAL RISKS

The federal government's business of developing entrepreneurs is "big business". Some agencies involved in assisting individuals in developing a business measure success by tracking the number of businesses they assist in the birthing process. The failure rate for these businesses is approximately 50%. Entrepreneurs may not realize the personal risks.

Entrepreneurship is Important to the Canadian Economy

"Entrepreneurship is a powerful force driving innovation, productivity, job creation and economic growth" and the "countries with a high level of entrepreneurial activity tend to be better off economically." (Fisher & Reuber, 2010) *The State of Entrepreneurship in Canada* released in February 2010 reports that the state of Canadian entrepreneurship is stable and relatively strong. The birth rate of new businesses is consistently higher than the death rate and new businesses have high survival rates. The authors of the report suggest that "a healthy rate of creation of new businesses with employees is one sign that there are people within a country with the motivation, capabilities and resources to start new firms that have the potential to contribute to the economy." (Fisher & Reuber, 2010)

The *State of Entrepreneurship in Canada* report provides evidence that between 2003 and 2008, there was "an increase in the percentage of working Canadians who are self-employed and own an incorporated business." (Fisher & Reuber, 2010) "Approximately 16 percent of all employed workers in the Canadian economy in 2009 were self-employed." (Key Small Business Statistics, 2010) The *State of Entrepreneurship in Canada* report proposes that some of the reasons for more Canadians becoming entrepreneurs include the recent economic downturns; the preference to have an independent lifestyle; and the celebrity status accorded to entrepreneurs. Whether or not these reasons are well founded is debatable. The reality of being self-employed is that

the independence is limited; the financial security is elusive and most entrepreneurs acknowledge having to work hard. (*Do I Want To Be My Own Boss*)

Business failures are a part of entrepreneurship development. According to Statistics Canada data, only about one in five businesses survive their first 10 years, with tens of thousands of businesses being born and dying every year. Business death rates increase and birth rates slow during economic recessions. (Lessons From the Recession, 2010) Big business failures dominated the media reports during the recent recession little media time was dedicated to small businesses failures. The public is well aware of the fact that governments at all levels expended funds to rescue businesses that were deemed “too big to fail”. (Lessons From the Recession, 2010)

The study by Fisher and Reuber reveals that approximately 51 percent of those firms founded in 2001 were still functioning in 2006 and explains that a failure rate in the 50 percent range after five years is to be expected. The statistics indicate that the small business survival rates in Canada decline over time. Approximately 96 percent of small businesses that enter the marketplace survive for one full year, about 85 percent survive for three years and 70 percent survive for five years. (Key Small Business Statistics July 2010)

The reasons for failure are numerous. There are challenges obtaining financing, obtaining skilled employees and in developing business networks, a good reputation, and a stable set of customers and suppliers. (Fisher & Reuber, 2010) The report further indicates that high “survival rates suggest that businesses are productive, innovative and resourceful enough to have staying power in the face of changing market conditions.” There is some suggestion that business failures are healthy because the result is that the financial and labour resources the businesses employed will be redeployed for a better use. (Lessons from the Recession, 2010) This pragmatic spin on interpreting business death may not be the view held by the owner of a failed business who has experienced the loss of their time, effort and money. This paper is the beginning of the author’s exploration of the proposed entrepreneur’s access to information concerning the legal risks associated with owning and operating a business and/or the failure of a business.

The *State of Entrepreneurship* report acknowledges that important entrepreneurial activity in Canada is carried out by small and medium-sized enterprises. “Small businesses with fewer than 50 employees, including businesses with no employees, represent 97.8 per cent of the total business establishments in Canada.” (Small Business Profile, 2009) Over a five year period there was a 15 percent increase in the number of Canadians self-employed with an incorporated business, the stats showed an increase from 5.5 in 2003 to 6.3 percent in 2008, with a larger increase in the number of women business owners over this five-year period” (Fisher & Reuber, 2010) It is notable that the “proportion of college and university graduates has increased — from 58 percent of the incorporated self employed with paid help in 1997 to 63 percent in 2007.” (Fisher & Reuber, 2010) These groups would not normally be thought to have the financial resources to start a new business; therefore the increases in women and youth entrepreneurship may be correlated to being specifically identified in the government’s strategic plan for entrepreneurship development.

The author was interested in reviewing the efforts that are made by government agencies to assist with the development of entrepreneurship in the Atlantic Provinces to determine the access to information to information about legal risks. A review of the federal and provincial agency websites indicated that a thorough analysis was beyond the time constraints associated with the “Being in Business” ASB Conference deadline. As an introduction to this area this author has reviewed some of the main agency websites and identified some of the more common legal risks.

There is no doubt that the Canadian government has shown an interest in growing the level of entrepreneurship in Canada. Industry Canada is involved in numerous aspects of the Canadian economy and figures prominently in the strategies to develop economic growth and sustainability of the economy. In the interest of developing entrepreneurship in Canada the provincial and federal governments have established a number of resources to assist. Each area of the country has its own set of agencies to assist with developing small business. The Atlantic Canada Opportunities Agency (ACOA), established in 1987, is a federal government department dedicated to and responsible for the Government of Canada’s economic development in Atlantic Canada, namely the provinces of New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland and Labrador. (Your guide to ACOA, 2008)

ACOA provides a number of services to promote entrepreneurship development in Atlantic Canada including but not limited to: access to information and advice on topics such as improving competitiveness, expanding and modernizing business, exporting to international markets, developing innovative ideas, selling to government agencies/departments; help with financing; business support services for *women entrepreneurs* and *young entrepreneurs*; policy research and analysis to identify, develop and promote entrepreneurship opportunities and contact information for other agencies. (Your guide to ACOA, 2008)

The *ACOA Report on Plans and Priorities 2010-2011* indicates that ACOA works with the 41 Community Business Development Corporations (CBDCs) across Atlantic Canada to provide access to capital for small businesses in rural communities. Success is measured through the number of CBDC investments to start up new businesses or stabilize or expand operations of existing businesses. Notably success is correlated to the birth phase of the business.

There are numerous agencies located in Halifax that provide assistance in the development of small business including but not limited to: Access Nova Scotia, Canada Customs and Revenue Agency, Canadian Intellectual Property Office, Industry Canada, Nova Scotia Permits Directory, Statistics Canada, NRC Industrial Research Assistance Program, Black Business Initiative (BBI), Business Development Bank of Canada (BDC), Canadian Youth Business Foundation, Centre for Entrepreneurship Education and Development Inc (CEED), iNOVA Credit Union, Nova Scotia Business Inc., Canada Small Business Financing Program, Better Business Bureau, Canada Business Nova Scotia, Centre for Women in Business, Self Employment Program, Canadian Angel Investment Network, Aboriginal Business Canada, Entrepreneurs with Disabilities Network, InnovaCorp, Halifax Regional Library: Small Business Reference Service,

Entrepreneurs Forum, Saint Mary's Business Development Centre and ISIS Immigrant Settlement & Integration Services. This listing makes it abundantly clear that assisting individuals to become entrepreneurs and to stabilize or expand their business is "big business".

It is apparent that many of these organizations are operated by government departments or agencies with some affiliation to government departments. Many similar agencies exist throughout the Atlantic Provinces and perform various tasks to assist the development of "entrepreneurship" in Atlantic Canada. Obviously the business of providing assistance to develop entrepreneurship employs many individuals in the Atlantic Provinces. Future research is planned to identify the number of individuals, the various job descriptions and the required skill set for the positions within these agencies. This information may assist in determining whether these agencies are staffed to ensure that the value added to the development and growth of entrepreneurship is justified by the government funding used to support these agencies.

Most of the agencies assist the proposed entrepreneur with preparing the business plan for a proposed business. The business plan contains information such as: the business name, the description of the business, the management team, the product or service, the market, the competition, the plan for sales and promotion, details concerning the production, the number and type personnel, the required investment, a breakeven analysis, a balance sheet, an income statement and a cash flow statement. (Planning for success, ACOA) Generally a marketing plan is also required and includes information such as: a situational analysis detailing the market opportunity, the market size, the market growth rate, the market drivers, the competitive environment, the technical environment, the socio-political environment, objectives, and sales and distribution channels. (Planning for success, ACOA) ACOA is involved in assisting entrepreneurs with improving competitiveness. Some of the agencies assist with the preparation and development of the complete business plan package by providing templates of business plans, marketing plans, income statements, balance sheets and cash flow statements on the agency's website. This allows the untrained entrepreneur to gain an appreciation of the type of information required to approach the agency for assistance. There is little, if any, information on the websites indicating the legal risks and/or the personal risks the individual may be undertaking when entering business.

Entrepreneurs Should Obtain Legal Advice

There is no question that every business venture has risk associated with it. The risks come from a variety of sources and should be taken into consideration when making business decisions. The ability to identify and understand the various risks is integral to business and personal financial planning. Legal disputes in business are costly, time consuming, require energy, use resources, attract negative publicity and risk personal assets. This report identifies some of the legal risks that may be considered when establishing and operating a small business.

In order for an entrepreneur to be properly prepared for business it is beneficial that they be informed of the some of the common legal risks associated with the business. This knowledge may be obtained either through education or access to a legal professional. Legal risk, for the purpose of this paper, is described as being that risk of loss related to a claim being made by or against an organization based on a breach of contract, a negligent act, a breach of a fiduciary duty or a breach of law. Managing the legal risks associated with operating a business requires the accurate identification and assessment of those risks. Some of the common legal risks are associated with: contracts, property liability, discrimination, harassment, employment standards violations, occupational health and safety violations, negligent hiring, money laundering, fraud, insider trading, unfair competition, environmental violations, theft, privacy violations, security breaches and non-compliance with legislation.

Some of the mechanisms to manage risks include: use of written contracts, development and implementation of security mechanisms, manuals, policies and procedures to minimize the risk of negligence or loss and ultimately the use of insurance to defray any losses. The author has noted that little, if any, mention of these is contained on the websites of the agencies involved in providing assistance to entrepreneurs in Nova Scotia. A document prepared on behalf of ACOA makes brief reference to a non-disclosure agreement. The document has a number of attachments and provides a template for a Non-Disclosure /Non-Compete Agreement as an Appendix. (Fast Forward) From a legal perspective, the author believes that a non-disclosure agreement should be in place before a proposed entrepreneur discusses the business proposal and provides access to confidential information to others, including the agency that is assisting with the development of the business plan and its supporting documentation. (*Lac Minerals Ltd.*, [1989] SCC)

Where templates are provided most agencies, if not all, indicate that a particular template is not intended to replace actual professional advice. The author believes that one concern that arises from providing the template is that those who do not have knowledge of the law may believe that using a template for a legal document is acceptable, will avoid having to seek legal advice and will save money. As no two circumstances are identical, the consequences of an entrepreneur adapting one of the legal templates to their particular circumstances without the assistance of legal counsel may be extremely detrimental to the entrepreneur. In the event of the legal risk of inappropriate disclosure of the confidential information coming to fruition the loss may well exceed what a legal consultation would have cost.

The identification and assessment of legal risks is a reoccurring task that must be performed on a regular basis as new legislation and regulations may be developed. The template approach to important legal issues may encourage the entrepreneur to develop the belief that consultation with legal counsel is not a necessity, that a given document format is suitable for all circumstances and further that revisions and changes are not required. The template approach ignores the fact that laws change and these changes affect the risk. If the entrepreneur has not completed all sections of a business plan or marketing plan or does not have all the information in the cash flow statement, income statement or balance sheet then the entrepreneur may not obtain the financing or may lose money. The consequences of not having a properly drafted agreement or not complying

with the law may result in lost time and money due to litigation, hefty fines or imprisonment. (*National Bank Financial Ltd. v. Daniel Potter* 2005 (NSSC))

In the most recent economic crisis businesses were thrust into situations requiring an appreciation for the legal aspects of business. The practice of involving a lawyer in the review of a business's documents and operations in order to ensure compliance with the law and help reduce the risk of liability for the organization and its owners, directors and officers is growing in popularity. Businesses experiencing financial difficulty were forced to restructure, to reduce their workforce; some were forced into litigation to receive payment from customers and many turned to personal assets for financing the business. At the same time business owners are required to respond to the enhanced public interest and demands associated with corporate social responsibility (CSR Legal Analysis, 2010) and sustainability. ACOA has indicated that for an economy to grow and be sustainable there must be a healthy environment. Furthermore ACOA has expressed interest in "promoting sustainable businesses in the Atlantic region, and by advancing the environmental industry sector in Atlantic Canada." (Moving Forward, 2007-2010 ACOA)

Any change that is made to the business environment can affect the business operations. Changes to the business operations generally will require changes to the documentation used to manage the legal risks. Generally speaking it is less expensive and less time consuming to avoid the problem than it is to respond to the problem. The entrepreneurs that are informed of the legal risks and are able to identify the changes will be able to respond accordingly.

Form of Business Organization

One of the first questions that an individual must consider is the type of organizational form that will be used to carry on the business. Generally the three forms most often considered are sole proprietorship, incorporation or partnership. There are legal consequences with each of the organizational forms of business. There are pros and cons with each of the organizational forms of business.

Often the corporate form of organization is promoted because of the limited liability for the shareholder/owner. The corporate form of business organization results in limited liability but only in those circumstances where the individual has not assumed unlimited liability by providing a personal guarantee or the law has not imposed personal liability on the individual. Generally, liability is imposed under legislation as a result of an individual's role in the business. In each of the forms of business organization referred to there may be personal liability for the owner/director/ partner/manager for the non-compliance with legislation dealing with worker's compensation, occupational health and safety, environmental, CPP, income tax and harmonized sales tax. In reality the corporate form of organization may provide little limitation of liability for the entrepreneur who has provided a personal guarantee to a creditor and/or who plays a fundamental role in the

operations of the organization. It is important to note that some government supported funding programs have required that the business be operated as a corporate organization.

Disagreements amongst the owners may develop in partnerships and corporations that are closely held amongst family or friends. If there is more than one individual involved in the formation of the business then mechanisms to resolve these disputes, to transfer the business and to divide rights and duties of the parties should be established. This may involve the preparation of a ‘partnership agreement’ or a ‘shareholders agreement’. It is advisable to consider incorporating a mechanism to allow and fund the purchase of the other party’s interest in the business should the need to do so arise. Concerns often develop when one of the owners meets with an untimely death and their heirs obtain rights to the business, when one of the owners experiences the breakdown of marriage or a long term cohabitation relationship or one of the party’s experiences insolvency and bankruptcy. It is much easier to anticipate these scenarios and provide a response in the agreement outlining the rights and obligations of the parties.

Most practicing lawyers involved in advising entrepreneurs will suggest the inclusion of a “shot-gun” type clause. This type of clause provides for the orderly yet forced transfer of the business interest using a predetermined evaluation mechanism from one party to another. In the case of a partnership or closely held corporation it may involve the transfer from one partner/shareholder to another or from the beneficiary of the deceased partner/shareholder to the surviving partner(s)/shareholder(s). It is possible for such transfers to be financed via life insurance policies and there are benefits to arranging these life insurance policies early on in the organization’s development. Regular review of such policies ensures the appropriate funds are available to finance the transfer and ensure a smooth transition of the ownership.

Forced transfer mechanisms may also be used in situations where the partners or shareholders are experiencing irreconcilable differences. It becomes important for the partners/shareholders to have developed an agreed mechanism for calculating the value of the business to reduce the potential for litigation over the value of the business interest. These transfers are obviously not fundable via life insurance policies thus there may be a need to explore options with respect to financing and timing in the agreement. These type of terms will assist the court in determining what the party’s intentions were should the business relationship become dysfunctional and litigation become necessary.

Government Legislation and the Associated Paperwork

There are numerous federal and provincial regulations that require entrepreneurs to perform administrative tasks and complete paperwork. This has often been identified as a distraction for business owners. Studies have revealed that there are many instances of non-compliance and much evidence that the excessive paperwork is a concern of business owners, with many employing third parties to complete the documentation required. “A 2005 study conducted by the Canadian Federation of Independent Business (CFIB) found that 65 percent of its members considered government regulations and the associated

paperwork burden to be one of their greatest concerns, second only to the tax burden.”⁶ It has been suggested that “the less time and money businesses spend preparing information for government, the more time they can spend on growing their businesses.” (Small Business View of Red Tape, 2006) The CFIB study confirms that all levels of government have taken initiatives to simplify compliance and streamline business-to-government interactions to encourage entrepreneurship. Streamlining the reporting process does not diminish the importance of compliance with the reporting process nor does it reduce the consequences for non-compliance.

The non-completion or inaccurate completion of reports may result in charges being levied against the business for violation of the regulations. An example can be found in section 15 of the Nova Scotia Labour Standards Act, R.S.N.S. 1989, c. 246 wherein the employer is required to keep and maintain records to provide evidence that he is complying with the Act, if not he has committed an offence under the legislation and may be subjected to a fine. Another example would include the obligation on the employer under section 86 of the Nova Scotia *Worker’s Compensation Act* to report accidents and the potential fine that may be imposed under section 207 if the employer fails to report. Under section 21 of the *Canada Pension Act* an employer is required to deduct and remit the contributions of the employee pursuant to the CPP, any failure to deduct and remit may result in the employer being held liable for the entire amount that should have been remitted on behalf of that employee. (*Canada Pension Act*, s.21(2)) In the event that the inaccurate or non-completion of required reports does not lead to charges there will still be lost time, efforts and costs associated with the inspection, investigation, response and re-submission.⁷

In a growing number of instances it is possible to file reports to government agencies via computer and the internet. Computer security is now recognized as a management concern. It is imperative that business owners be aware of the laws that require security of personal information and appropriate disclosure and destruction. It is imperative that the equipment and process being used be secure to ensure compliance with privacy laws. Many individuals may be familiar with computer applications but lack sufficient knowledge of computer security operations. The upgrading of the business

⁶ Analysis of Regulatory Compliance Costs: Part I Time/money saved, paperwork volumes and methods of compliance (Government of Canada April 2010) “Consistent with the 2005 survey findings, in 2008, SMEs were most likely to require external service provider assistance to prepare federal/provincial business income taxes (Figure 4). Figure 4 also indicates that a fairly large percentage of SMEs relied on external service provider assistance to prepare their corporate registration forms (54 percent), T4 paperwork (37 percent) and corporate tax instalments (35 percent). On the other hand, a fairly small percentage of SMEs relied on external service provider assistance to comply with municipal operating licences and permits (11 percent), mandatory Statistics Canada surveys (11 percent), workers’ compensation remittances (11 percent) and workers’ compensation claims (7 percent).”

⁷ Sales Tax Act, S.N.S. 1996, c. 31, sections 7&8; Personal Information Protection and Electronic Documents Act, S.C. 2000, c. 5, sections 4, 5, 8,11, 12 and 28.

computer system and servicing of the system should be monitored to ensure that third parties do not engage in inappropriate access to sensitive information.

Ahmed Assal v. Halifax Condominium Corporation No. 4 was a case involving the condominium by-laws and the question of whether the application of a particular condominium by-law has the effect of resulting in discrimination under the Nova Scotia *Human Rights Act*. Although the Board of Inquiry established under the provisions of the Nova Scotia Human Rights Act dismissed the complaint and indicated that the Complainant had not met the necessary burden of proof required to demonstrate a violation of sections 5(1)(a), (b), (k), and (q) of the Nova Scotia *Human Rights Act* which identify the prohibited grounds of discrimination. The business organization still had to assign staff time, energies and retain counsel and thus incur costs to respond to the complaint.

It is necessary for all business organizations to ensure that internal policies and procedures comply with the provisions of governing legislation and further that all documentation reflect such compliance. Although this will not prevent the initiation of a formal dispute process it may assist with limiting the adverse effect of such process.

Human Resources Management

The management of human resources is fraught with “landmines” including claims based on vicarious liability or negligent hiring, employee challenges to drug and alcohol testing or surveillance of employees, claims of wrongful dismissal, claims of harassment or discrimination.⁸ There are some fundamental precautions the business owner/employer should take to reduce the likelihood and minimize the costs of a dispute related to human resources.

There are numerous reasons for the business owner to ensure compliance with human rights legislation during the recruitment/hiring process. Employers rarely appreciate that there is a high standard of compliance placed on employers under human rights statutes; that human rights legislation is given “quasi-constitutional” status by the courts; that human rights allegations and complaints in the workplace are quite frequent; that high costs are associated with human rights cases; that the burden of proof is generally placed on employers in human rights complaint proceedings; that a complaint has a negative effect on workplace morale and adversely affects the employer’s public reputation; and the media gives attention to human rights cases.(Filsinger, 2005)

At the time of establishing a business the proposed entrepreneur is preoccupied with the development and preparation of the business plan and its associated documents, little if any

⁸ *Bazley v. Curry* 1999 CanLII 692 (SCC); *Jacobi v. Griffiths* [1999] 2 S.C.R. 570; *Allied Systems (Canada) Company v. Teamsters Local Union 938*, 2008 CanLII 13354 ; *Alberta (Human Rights and Citizenship Commission) v. Kellogg Brown & Root (Canada) Company*, 2006 ABQB 302 (CanLII); *Honda Canada Inc. v. Keays*, [2008] 2 S.C.R. 362, 2008 SCC 39; *Ont. Human Rights Comm. v. Simpsons-Sears*, 1985 CanLII 18 (S.C.C.)

mention is made of the numerous hazards associated with managing employees. In many instances this information is conveyed via a training session after the business has been established or when a particular circumstance requiring attention develops. The entrepreneur should become acquainted with the added paperwork burden associated with hiring an employee and the consequences of non-compliance. The Statistics Canada Survey of Regulatory Compliance Costs results indicated that there was “a significant increase in the number of submissions and claims required of businesses after hiring their first employee”. (Small Business View of Red Tape, 2006) An employer may be liable for inaccurate statements made during the hiring process. It is irrelevant whether the employer sincerely believed that the misleading or inaccurate statements were true. (*Queen v. Cognos Inc.*, [1993] SCC)

There are significant restrictions placed on the advertisements, application forms and interview questions used in the hiring process. Problems may arise with the recruitment/hiring process. The job description, the application form and the interview process must comply with the human rights legislation and in particular must not offend any of the prohibited grounds identified in the legislation – including: age, race, colour, religion, creed, sex, sexual orientation, physical disability or mental disability, an irrational fear of contracting an illness or disease, ethnic, national or aboriginal origin, family status, marital status, source of income, political belief, affiliation or activity. (Human Rights Act, R.S.N.S. 1989) Each of the Atlantic provinces has similar provisions dealing with human rights, however there may be slight variations in the listing of prohibited grounds. An employer must make sure that they are aware of any changes to the legislation.

There is an increased emphasis on security and safety in the workplace. Selection should be determined by considering whether the individual has the necessary skills, the work-related experience and whether or not they pose a risk to the safety and security of the others. Inappropriate employee choices may cause challenges for the financial stability and the reputation of the business. It is exceptionally important for an employer to check the candidate’s references prior to hiring. In order to conduct a thorough background check it is necessary to receive the consent of the applicant. The hiring process should incorporate the appropriate consent forms to allow the background check to be conducted. Evidence of due diligence in employee selection is beneficial in responding to claims of “negligent hiring”. Negligent hiring may occur when the employer hires a person that he/she knows, or should have known, would create an undue risk or harm to others. Failure to use reasonable care in the employment selection process can be costly.

The development of an employment policy manual reduces the chances of a dispute arising by communicating dress codes, probationary periods, benefit entitlements, disciplinary procedures, office procedures, sick leave policy, harassment policy, violence policy, etc. in a convenient centralized location and informs both the employer and the employee of the applicable laws and regulations. To be effective in providing assistance in a dispute it is important that the employment policy manual be provided to employees at the time of hiring and be incorporated into the employment contract, that employees be required to indicate in writing that they have reviewed the manual and that policies be applied consistently. If an employer makes fundamental changes to the terms of

employment without consent of the employee a claim of constructive dismissal may be alleged.

Financing

Most entrepreneurs require financing to assist with the development of the business. In order to obtain the financing it is often necessary for the entrepreneur to provide a personal guarantee and collateral to cover the indebtedness of the business. The preparation of the income statement, balance sheet, cash flow statement, business plan and marketing plan is intended to provide the lender with the information to assist in determining whether or not the loan will be approved. The websites do not contain information on the legal consequences associated with providing the security. It must be remembered that approximately 50 percent of businesses fail. Proposed entrepreneurs should always receive independent legal advice at the initial stages of process to ensure a complete understanding of the risk of losing the asset placed as security if the business fails. Entrepreneurs obtaining financing will most likely be required to obtain independent legal advice when they execute the security documentation for the loan, however by this time they would have expended much time, energy and money on preparing the proposal for the business and may be reluctant to refuse to follow through with the proposal. In the event that the entrepreneur is married, the spouse of the entrepreneur may also be required to execute the security device, to decline execution of the document at this point in time may cause stress between the spouses.

Many of the agencies involved in the assisting the proposed entrepreneur use disclaimers to reduce or eliminate any responsibility for the assistance given to the entrepreneur. The agencies usually require the entrepreneur to prepare the documentation or assist with the preparation of the documentation based on the information provided by the individual proposing the business. The relationship between the individual and the agency is quite similar to that of a client and a consultant but the services are generally offered free of charge by the agency. The distinction between the services offered by the agency and a consultant, the disclaimer used by most agencies, the assisting rather than advising function all serve to reduce the liability of the agency and its employees. It must be remembered that success for the agency may be measured by the number of “start ups”, as such it may not appear to the advisors be in the best interest of a particular agency to communicate specific information that may challenge the proposed entrepreneurs knowledge or beliefs. Many agencies provide information on financing and information on developing a business plan to assist with obtaining the funding but little, if any, information on the legal risks. This may be perceived as a deficiency in the business planning process as the exploration of the legal risks is left to the individuals to identify and pursue and many do not wish to spend additional monies, therefore consultation with solicitor is limited to that which will ensure receipt of funding.

A report prepared by Industry Canada detailing the statistics for small and medium size enterprises (SMEs) indicates that a business’s financing needs evolve as it grows.

Generally sources of financing are categorized as formal or informal. Informal financing is often used in cases involving small businesses and it is dependent on the personal liquidity of the owner. Informal financing includes: the owners' savings, personal loans taken out and guaranteed by the owner, and loans from other sources such as friends and family members. "In 2007, start-up SMEs primarily used informal sources of funding, such as personal savings (73 percent); however, about half of SMEs (51 percent) secured commercial or personal loans from financial institutions compared with 64 percent for established SMEs."(Key Small Business, 2009) The statistics indicate that approximately 50% of businesses fail, therefore, obtaining financing from people, such as friends and family, who may not understand the risks associated with the loan they are providing is troubling. If these individuals experience a change of heart or require the funds for their own uses and request the money be repaid it may cause difficulties for the entrepreneur. In many instances there is little or no documentation to support these informal loans which results in great difficulty in the event of a demand for payment or if the business becomes bankrupt. Appropriate legal advice may ensure that both the lender and the borrower are protected by an agreement.

Confidential Information/ Intellectual Property

Most businesses have placed large amounts of confidential information on the computers used in the workplace by the employees. All business owners and managers must recognize the need to protect and control confidential information. The possibility of the loss or compromise of confidential information occurring is increased the greater the number of persons having access to the information. Access may be viewed as having two dimensions that must be managed – the number of individuals and the extent of access granted to each individual. The owner/manager must consider both of these aspects when developing security policies and procedures for the business. The access and the role a particular individual plays in the business should be reviewed and revised as required. It is important to have a process to ensure that access codes are regularly changed and do not include common names or easily identified information. Insurance for theft or loss from internal sources may be compromised if due diligence has not been exercised by the business.

There is a growing concern in many workplaces about personal use of the workplace computer by employees. At the time of hiring it is beneficial to inform employees in writing of their rights and obligations with respect to confidential information, access to information, data, and use of the computer systems. Employees should be informed and should acknowledge in writing that there is no expectation of privacy and that access to systems will be closely monitored and terminated when no longer required or a breach has occurred. If this acknowledgement is not obtained the employer may be in the position of proving they have not violated the employee's privacy. In the event that the employee has been dismissed for inappropriate use of the computer it makes the position of the employer more tenable.

New product development raises questions about the applicability of intellectual property laws. There are different considerations and procedures depending upon whether the invention

could be the subject of a patent or a trademark or a copyright or an industrial design or an integrated circuit topography or plant breeders rights. *Fast Forward* a brochure prepared on behalf of ACOA indicates that there are a number of considerations that will come into play when an individual proposing to develop a business is an inventor. The brochure provides 4 options that may be available to bring the product to market including selling the technology outright or assigning it to another party; entering a licensing agreement with another party; entering a partnership or starting up a business. (Fast Forward)

The brochure provides enough information for the individual to begin discussions with a professional such as a lawyer or an accountant concerning the pros and cons of each alternative. Each of the options comes with its own legal and financial consequences that may have a tremendous effect on the individual's future revenues and obligations. It must be remembered that an agreement protecting the confidentiality of the product specifications would be useful to manage the risk involved in the consultation and negotiation process.

Privacy

Federal and provincial legislation has been enacted to safeguard the privacy of personal information. This legislation affects personal information held within organizations in the public and private sector. "The purpose of the legislation is to establish rules to govern the collection, use and disclosure of personal information in a manner that recognizes the right of privacy of individuals with respect to their personal information and the need of organizations to collect, use or disclose personal information for purposes that a reasonable person would consider appropriate in the circumstances."

The use of camera surveillance and recording in the workplace or the monitoring of email or computer usage by employees may be in violation of the legislation, therefore business owners and managers should obtain a professional opinion prior to implementing either of these in the workplace.

Many businesses collect personal information from employees and customers. Business owners/managers should ensure that regular reviews are conducted of the type of personal information collected, the reason the information is collected; the method used to collect, store, secure and dispose of the information; and the access to and the use made of the information to ensure that the legislation is being complied with by the organization. The non-compliance with the legislation is deemed to be a violation of the legislation. Any harm or loss suffered by an individual as a result of the inappropriate disclosure of personal information may result in a complaint and an investigation pursuant to the legislation, a claim for damages and potentially negatively affect the reputation of business.

The Office of the Privacy Commissioner of Canada produced a document entitled *Privacy Guide for Small Businesses: The Basics*. This guide provides a checklist as a starting point for training employees that are required to deal with personal information in the course of their employment duties. There are other resources on the Privacy Commissioner's website that it would be useful for the entrepreneur/employer to review. It should be understood by the entrepreneur that customers and employees that believe the provisions of the legislation have been violated are entitled to file a complaint with the privacy commissioner. It is relevant to note that federal or provincial legislation may be applicable and that there may be variations between

the jurisdictions, therefore obtaining professional advice helps manage the risk and assists the business in compliance.

Contracts

The foregoing statements are false, yet many individuals proceed to enter business negotiations believing the content of the foregoing statements to be true.

1. A contract is a single document with all the terms and conditions in that document.
2. Contracts that are in writing are always enforceable. All the contract terms are enforceable.
3. Verbal contracts are not enforceable.
4. The court does not imply terms into a contract. If there is a contract there will not be litigation.
5. The only contract that is not enforceable is the illegal contract.
6. The innocent party never loses the litigation involved in a contract dispute.
7. Contract templates are a cost efficient and effective way to protect the business from liability.

Although there may be standard terms included in a contract, each situation involves its own unique circumstances. In order to draft a contract that provides the best protection for a party in a given situation it is necessary for the drafter to be familiar with the legislation and the case law that affects that situation. It is most important for the entrepreneur to realize that having a written contract will not prevent litigation but will provide evidence of the intentions of the parties and the terms of the contract. The importance of the accuracy in the drafting of the document will become apparent should a dispute over interpretation result in litigation.

Entrepreneurs may enter into contracts involving areas such as: the leasing of premises and equipment; the establishing of loans or lines of credit for the business; the establishment of supplier relationships; the provision of guarantees to suppliers and lender; the provisions of such services as electrical, telephone, internet communications; agreements establishing insurance coverage; licensing or franchise agreements. Generally each of these areas provides for the use of standard form contracts. Standard form contracts may be identified as being those contracts that are presented to the entrepreneur in finalized format with very few of the terms being negotiated between the parties. The presentation of a completed written contract form should alert the entrepreneur to a possible inequality in bargaining power. It is comforting to know that some of these areas are covered by federal or provincial legislation that is intended to provide some protection for the contracting party to whom the standard form contract is presented. It is also important for the entrepreneur to be aware of the fact that the legislation does not exist in all areas and does not provide complete protection.

The actual interpretation that will be given to any specific clause in an agreement will only be resolved by agreement of the parties or the decision from an arbitrator or a court of competent jurisdiction. Many agreements incorporate a fair amount of legalese. Entrepreneurs should be wary of entering into negotiations or executing contracts without having received direction from a legal professional on the interpretation of the terms. The potential costs and losses suffered by proceeding without obtaining legal advice may outweigh any savings experienced by proceeding without legal advice. Those who sign a contract will be deemed to have read and understood the terms of the contract and may be bound to the reasonable person's interpretation of the contract.

It must be remembered that the court does not generally recognize the non-expertise of the new entrepreneur as reason to ignore contractual terms agreed upon by the parties.

Conclusion

The federal and provincial governments have invested much effort and money into the development of entrepreneurship in Canada. Many agencies have been established to assist an individual with business development. Each of these agencies is somewhat restricted in the service it can provide. In order to validate the existence of such an agency it is necessary to develop a measurement of success. If the measurement of success is related to the number of start-up businesses the agency has assisted then there is a possibility of conflict of interest. Approximately 50% of businesses fail. Although there is some suggestion that this statistic is to be expected, the author feels that the failure stat indicates that there is a need for improvement in preparedness of the entrepreneur.

Many new entrepreneurs must risk their personal financial security to start-up the business. By enhancing the legal knowledge of the entrepreneur, their ability to anticipate and prepare for business risks will be much improved. The improved ability to be proactive and react to risks with an informed response may reduce the personal losses suffered by the entrepreneur. This may enable the entrepreneur to retain personal financial stability. The result may be a reduction in the death rate of Canadian businesses. This may lead to a higher level of entrepreneurial activity in Canada and an improved Canadian economy.

In the litigious business world of today it is not responsible to encourage others to enter and risk their financial stability without recommending that legal advice on the risks be obtained. An in depth analysis of the various agencies and programs available to assist the development of entrepreneurs would provide some indication of the skills required of such advisers. This could eventually lead to the development of programs that could provide fundamental information to proposed entrepreneurs about the most common legal risks that exist for the entrepreneur and the mechanisms that exist for limiting the effect of those risks on the entrepreneur. It is the entrepreneur who determines whether the risk is too great to take and decides not to enter the business or not to extend or expand the business. The author believes that the current programs that exist to encourage entrepreneurship may require revision to ensure that those engaging in entrepreneurship are informed. From the cursory review of a number of the Atlantic Provinces agency's websites the author suggests that little if any information is conveyed to aid in the identification and management of the dangers associated with the legal risks associated with business. Future research on the information provided by these initial points of contact and support agencies will allow for an evaluation and possible revision of the qualifications and role of the agency employees.

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Personal Information Protection and Electronic Documents Act, S.C. 2000, c. 5

Case Track - Études de Cas

UNITED WAY'S TOBACCO DILEMMA

Cathy Driscoll, Saint Mary's University
Heather McKelvey, Saint Mary's University

When the United Way of Halifax Region received an unsolicited gift from a tobacco company, the organization faced a dilemma. With no formal gift acceptance policy in place, the Board of Directors had to decide whether or not they should accept the donation. This is a problem-based case study where students must decide whether or not the Board of Directors should accept the donation. Included in the case is information that supports both sides of the debate, and the reader must engage in extensive analysis and reflect on personal and organizational values before making a conclusion. The case was designed for use in a business ethics or business and society course, and would also be relevant for any business course that encompasses ethics, social responsibility, leadership, or governance issues.

BULK BARN IN MONCTON

Peter Sianchuk, Mount Allison University
Gordon Fullerton, Saint Mary's University

Bulk Barn Foods Limited had conducted a marketing research project examining consumer attitudes toward two Moncton area franchised stores. The franchisee-owner was evaluating the report and hoping that the research might provide product and promotional recommendations that could be used to improve performance. However, because the business was operating as a franchise the owners were restricted in terms of any direct action they could implement. Recommendations would need to be taken to corporate office for approval.

**MEMORIAL'S MINI-BAJA: A CASE STUDY ON OPERATIONAL STRATEGY AND
MANAGEMENT OF A NEW ENTERPRISE IN SMALL-VEHICLE DESIGN**

Amy Hsiao, Memorial University
Jill Henderson (student), Memorial University
Ian MacNeil (student), Memorial University
Scott Manning (student), Memorial University
Rocky Strong (student), Memorial University
Brad Tooktoshina (student), Memorial University
Fallon Walters (student), Memorial University

BAIT AND SWITCH MARKETING? JASON SIMMONS BUYS A CHRYSLER

Robert MacDonald, Crandall University
Amy MacArthur, Crandall University
Graeme Ching, Crandall University

Bait and Switch Marketing? Jason Simmons Buys a Chrysler examines the experience of one consumer in his attempt to purchase a shopping good and his perception of one vendor's promotional strategy. The case encourages the reader to examine the experience from the perspective of the consumer and vendor, and to consider the legality and / or ethical nature of the marketing tactics being employed.

**THE BRITISH PETROLEUM OIL SPILL: A BRIEF CASE STUDY ON OPERATIONS
MANAGEMENT AND PUBLIC RELATIONS**

Amy Hsiao, Memorial University
Matthew Clark (student), Memorial University
Andrew Downey (student), Memorial University
Charles O'Keefe (student), Memorial University

**CROSSING THE THIN BLUE LINE: THE CITY OF MONCTON'S STRUGGLE WITH
POLICING SERVICES**

Robert MacDonald, Crandall University
Heather Steeves, Crandall University

Government decision making at the municipal level (indeed, at all levels) can be complex, requiring not only the consideration of available (and sometimes limited) information but also of the various political factors – represented by myriad stakeholders and their interests – involved. *Crossing the Thin Blue Line* examines a pressing decision faced by the City Council of Moncton, New Brunswick, Canada, regarding the future of policing services in the municipality and challenges the reader to consider diverse perspectives and to recognize that – in the political realm – not all choices are as straightforward as they may seem.

EVALUATING OPPORTUNITIES FOR GROWTH: CONNETIK INTERACTIVE AND THE KITCHENER DECISION

Robert MacDonald, Crandall University
Jonathan Dunnett, Crandall University

Decisions concerning growth are typically problematic for small and medium sized enterprises, given the often limited resources (financial, informational, etc.) they possess. Connetik Interactive is a growing IT firm based in Moncton, N.B. that is presently facing an expansion decision. The case challenges the reader to consider an opportunity to geographically diversify the company by opening an office in Kitchener, Ontario, Canada, in light of owner desires, corporate financial position, and present and expected future state of the industry.

Entrepreneurship - Entrepreneuriat

ASB Conference 2010
Halifax,
Nova Scotia

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SPIN-OFFS IN THE METAL-MECHANIC SECTOR IN MEXICO: THE CASE OF MACHINE TOOLS

This paper focuses on the creation of spin-offs in traditional and low-tech sectors located in a Mexican region. We analyze different factors that affect the creation of spin-offs such as the strategy of linking, role of the entrepreneurs' education and experience, and geographical location within the region. We identified that entrepreneurs' education and experience play a key role for the creation of spin-offs. We also found that geographic location within the region play an important role for the creation of spin-offs.

Key-words: spin-offs, entrepreneurship, traditional sectors, Mexico.

1. Introduction

The analysis of spin-offs has gained increased attention in the business and economic literature during the last 15 years. Most of the literature has focused on spin-offs by key employees, where the new companies can be either competitors (Agarwal et al., 2004) or suppliers, in both cases, the linkages established with the parent companies are crucial for the success of spin-offs. Other type of spin-offs are those created and partially owned by the partner company but they can be independently managed (Parhankangas and Arenius, 2003). A third type of spin-offs refers to those created by universities or research centres, where formal and informal linkages between the spin-off and the parent company remain for a long period of time (Zhang, 2009). These three approaches follow different strategies by the parent companies and must be analyzed under different perspectives. On one hand, spin-offs that are competitors with the parent firm require

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certain level of disagreement with the parent company, here the spin-off needs to increase their competitiveness and be highly innovative, probably focusing on a market niche. Spin-offs that act as suppliers need to develop certain structures of demand and supply with the parent company, but also with other potential customers, formal and informal linkages with the parent company are crucial for the success of these spin-offs. On the other hand, spin-offs that act as a subsidiary of the parent company can be created to explore new technology paths without diverting the parent company from its core activity. The creation of complementarities plays an important role for this type of spillovers (López and Martín, 2010). Regarding spin-offs from universities or research centres, they can be created to exploit new technologies and use them for commercial purposes.

The main aim of this paper is to analyze the different factors that affect the possibility to spin-off, such as strategy, given by the capacity of linking with the parent firm and other agents in the region; entrepreneurs' absorptive capacities, given by entrepreneurs' education and experience; and geographic location. We argue that these three factors are important determinants to create spin-offs.

This paper gathered original data through a survey carried out during 2005 to the machine tool sector in Querétaro, Mexico. This sector is a traditional low-technology sector supplier mainly of automotive, electronics, and electro-domestic companies. A high percentage of the machine tool firms in this location are spin-off companies.

Our results contribute to the literature in different ways; first we identify the main factors that play an important role to launch a spin-off by the entrepreneurs' perspective. We identify if strategy, absorptive capacities, and geographic location are linked to the creation of spin-offs, and we analyze the creation of new firms in a traditional sector located in a specific region. We emphasize the fact that entrepreneurship can occur in any industry, not only in R&D intensive industries. Finally we can argue that spin-offs in traditional sectors are important sources of employment and creation of technical and organizational capabilities, which can have a positive impact for the regional economy.

This paper is divided in five sections. After this introductory section, section two presents the theoretical framework on which the hypotheses are based. Section three describes the methodology, sample, variables, and the model. In Section four, we report and discuss the results of the empirical analysis from both an explicative and descriptive perspective. Section five concludes and provides some policy implications.

2. What are the Main Factors that Determine Spin-Offs?

2.1. Role of the Parent Firm

Dahlstrand (1997) defined spin-offs as a new firm whose founder had left his previous job to start a business of his own. We can observe from this broad definition the lack of important elements that are necessary to analyze the concept of spin-offs in different industries, such elements can be the production and managerial experience acquired at the parent company, the direct transfer of knowledge between the parent organization and the spin-off, and formal and informal linkages that can be maintained between the spin-off and the parent company. Agarwal, et al. (2004) found that formal and informal linkages with parent firms facilitate the integration of knowledge. Those linkages are particularly important right after the creation of the spin-off, as they represent a source of knowledge transfer in both directions.

As a matter of fact spin-offs are created by one or various employees from the same firm or from different firms, each one of them have certain knowledge basis that allow them to interact and build new knowledge. Some authors have found that spin-offs have the potential to be more successful if their founders have more business experience, and some knowledge about potential markets and customers from their experience in the parent company (Dahlstrand, 1997; Lindholm, 1997). Several authors have argued that spin-offs are important depositories of knowledge from parent companies (Lindholm, 1997; Parhankangas and Arenius, 2003; López and Martín, 2008). In this sense, Lindholm (1997) defined spin-offs as new firms derived from the parent company that involve the transfer of some rights, such as assets or knowledge, from the existing firm to the new firm.

Spin-offs occur for a number of reasons, in most cases, spin-offs increase the possibility for the parent company to focus on the core business, and spin-off are created to focus on a specific segment derived from the parent company (Parhankangas and Arenius, 2003); this process would give competitive advantages to both firms and the potential to grow faster for the spin-off. Some authors have found that parent firms with higher amount of knowledge, more diversified and with higher R&D capabilities are more likely to launch spin-offs (Agarwal, et al., 2004; López and Martín, 2008), or are more willing to support former employees to launch spin-offs. Different studies have shown that the parent firm is an important source of technological and managerial knowledge (Boeker, 1997) that can be transferred to the spin-offs through different mechanisms; one of them is personal mobility through entrepreneurship (Almeida and Kogut, 1999). Personal mobility is particularly important for the transfer of tacit knowledge, which is mostly acquired by learning-by-doing and learning-by-using (Nonaka, 1994). For traditional and low technology sectors, much of the knowledge has been acquired and accumulated by informal means (Chen,

2009) and is mostly tacit. Following this argument, knowledge spillovers in the form of tacit knowledge from the parent company play an important role for the creation of spin-offs, and technological and managerial capabilities depend on great extent of those knowledge spillovers. However, knowledge spillovers will play a more important role if the entrepreneurs have certain amount of absorptive capabilities, which are function in part of their education and experience level.

2.2. Role of Entrepreneurship

Spin-offs are important depositories of knowledge embedded in entrepreneurs that started the spin-off. Knowledge that is inherited from the parent company is important at different stages, such as at the creation, development and survival of spin-offs (Agarwal, et al., 2004), tacit knowledge plays an important role as it can be transfer mainly through mobility of the entrepreneur. Dahlstrand (1997), found that a large number of the spin-offs were based on the entrepreneurs own ideas, and tacit knowledge, which are in part function from their experience at the parent company. After the creation of the spin-off, the increased interaction among entrepreneurs and new employees may lead to the flourishing of ideas to produce new products and solve production problems that would have not been possible to solve without these new types of interaction. The focus on entrepreneurs is important, Agarwal, et al. (2004) found that the agent of knowledge transfer is important, as knowledge transfers are more effective through entrepreneurs than through employees. Knowledge spillovers in the form of tacit knowledge are particularly important for manufacturing sectors, as stressed by Amsden (1985), manufacturing experience is a critical source of learning and competence in the machinery sector, as much mechanical technology remains tacit or non-codified in a written form.

The role of knowledge spillovers through entrepreneurship is particularly important at the first stages of the spin-off, where managerial and production experience plays a critical role for the initial set-up of the new firm. Several authors have analyzed the role of different factors that affect the creation and success of spin-offs (Agarwal, et al. 2004; López and Martín, 2008), but less research has been done regarding the factors that determine the creation of spin-offs in mature and low technology sectors, such as the machine tools. We argue that successful spin-offs are directly related to the entrepreneur absorptive capacity to acquire, generate, combine and exploit knowledge with commercial ends.² Their education level, previous experience, technology embedded in equipment, financial factors, and the context, affects the level of absorptive capacity (Marin and Bell, 2004; Giuliani, 2005).

² Absorptive capacity is the identification and absorption of external knowledge, its combination, and commercial application, which is critical for organizations (Conner and Prahalad, 1996; Cohen and Levinthal, 1990) including spin-offs.

Within this model the role of entrepreneurs is particularly important in small and medium sized enterprises (SMEs), as entrepreneurs play a key role in designing strategic plans, production plans and fostering innovation and productivity in their new firms (Marcati, Guido and Peluso, 2008).

2.3. Networks

In his sample, Dahlstrand (1997) found that spin-offs have grown considerably more than non-spin-off firms; this fact can be attributed to the entrepreneurs' experience that has been gained at the parent company, but also to the market experience and networks that have been established with the parent company and other firms with former linkages with the parent company. The parent company and the spin-off have an intrinsic network derived from the activities performed in the past (Dahlstrand, 1997; Lindholm, 1997). Thus, interaction between parent firms and spin-offs can be easier as individuals share a similar culture, similar managerial and production techniques and product specifications. Particularly for the case of spin-offs that supply specific products to their parent companies, they understand better the production processes, quality and product requirements from the parent company, as they share similar values. Under this scheme, both firms may increase their level of interaction for the creation of new ideas and acquisition of knowledge to identify new opportunities.

We argue that networks between the spin-off and the parent company play a critical role for the success of spin-offs. The interaction and knowledge exchange between the spin-off and the parent company increase with regional proximity, and face-to-face interaction. Dahlstrand (1997) found that a high percentage of entrepreneurial spin-offs have a strong tendency to localize in the metropolitan areas closer to their origins and get the benefits from proximity.

Networks within the new spin-off are also important. López and Martín (2008) mention that the interaction for the creation of new ideas within the boundaries of the firms is social networking. Which is important to identify new business ideas and the implementation of new ventures, and the ability to create social networks within companies can foster spin-offs (Debackere and Veugelers, 2005; Clarysse and Moray, 2005), thus, maintaining social networks is vital for the new spin-off company.

3. Methodology

3.1. Data Collection

For this study we focus on the machining industry, particularly the machine tools in Querétaro -a Mexican locality. Querétaro is geographically located in the center of Mexico and has 1,615,118

inhabitants. Their main industrial activities are: metal-mechanic, automotive, textile, chemistry and electric-electronic. Their contribution to GDP is 1.8%. Their local infrastructure such as electric services, industrial parks and road system has fostered the growing of industry. This is a traditional and low technology industry integrated mostly by SMEs. The machine tools industry presents a hub-and-spoke³ type of arrangement with its clients, which are mostly domestic firms and MNCs from the automotive and home appliances sector. A high percentage of the machine tool companies are spin-offs of larger firms and currently have supplier relationships with their parent companies.

One of the most important aspects of the machine tool industry in this region has been the linkages between spin-offs and their parent companies. The interaction between firms within the sector has also played an important role to reach quality and production standards. However, the machine tool industry needs to increase its capabilities, flexibility and adaptability to increase their market share. The machine tool industry in Querétaro reported sales over \$49 million dollars and employed more than 3,000 people during 2005. This industry supply only 10% of the total demand for machine tools in the locality; their principal products are gears, arrows and dies (production and repairing). These are low technology products in comparison to the other 90% imported machine tools. Customers from this industry are large and medium firms; which include both subsidiaries of multinational corporations and others owned by domestic capital; 42% of those firms belong to the automotive and home appliances sectors.

Original data for this paper has been gathered through a survey applied during 2005 to this industry in Querétaro. The questionnaire has six main sections; section one seeks to identify general information about the firm, section two is focused on the entrepreneurs' characteristics, such as type and level of education, previous experience in the parent firm and the type of activities performed in the parent firm. Section three seeks to identify the firm's production characteristics and its main customers. Section four focuses on the firm strategy. Section five focuses on the main production and design capabilities and innovation strategy. The last section of the questionnaire aims to identify networks with the parent firm, other firms and other agents in the region.

We identified two hundred twenty five firms;⁴ one hundred and seventy nine firms answered the questionnaire, which represent 80% of the response rate. However, we only have complete information to analyze one hundred and ten firms.

³ In the hub and spoke productive arrangements, some large firms act as anchors or hubs to the regional economy, with suppliers that spread out around them like spokes of a hub (See Markusen, 1996). In the sector and locality analyzed, there are some key large firms, many SMEs have established around them to become their suppliers.

⁴ From these firms 206 are micro firms, 13 are small firms and 6 are medium size firms.

3.2. Variables

To identify the main factors that determine the probability of spin-off in a traditional low technology sector, we performed a Probit model. The independent variable is a dummy variable that represent spin-offs, which equals one if the new firm is a spin-off and zero otherwise. The set of dependent variables relates to different characteristics that affect the creation of spin-offs, such as linkages with the parent company, education level and experience of the entrepreneur, and geographical location.

Linkages between the parent firm and the spin-off are represented by a dummy variable that equals one if the spin-off has linkages with their parent company and zero otherwise. Entrepreneurs' education is composed by two main variables, one numerical variable that indicates the amount of years of formal education, and the second variable is a dummy variable that equals one if the entrepreneur has an engineering degree and zero otherwise. Entrepreneurs' experience is also composed by two main variables, one is a numerical variable that indicates the total years of experience of the entrepreneur in other companies, including the parent company, and the second variable is a set of dummy variables that indicates the main area of expertise, such as production, management, research and development (R&D), quality control, purchasing, or sales, each one of these variables equals one in the entrepreneur had experience in those areas and zero otherwise. Geographical location is a dummy variable that equals one if the spin-off is located close to the parent company and zero otherwise.

3.3. Model

We conceptualized a Probit regression model to identify the impact of different variables on the decision to spin-off. The dependent variable (SP_i) is a dummy variable that equals one when the firm is a spin-off. The vectors of independent variables in these equations are those features of firms that affect their probability to spin-off (RV_i). We focus on the role of the entrepreneur and the main variables that are linked to their absorptive capacities, as we argue that higher levels of absorptive capacities also bring higher possibilities to spin-off, even in traditional and low technology sectors.

We conceptualize the following equation:

$$SP_i = RV_i b + u_i$$

SP_i: Spin-off

RVi: Linkages with the parent company, for the entrepreneur: years of formal education, engineering degree, years of experience, and area of expertise (production, management, R&D, quality control, purchasing, sales), and geographical location.

i: Each individual.

u_i: Random error for each observation.

We first chose the variables of the selection model that may affect the probability of spin-off. Secondly, we identified the best possible model by estimating different specifications of Probit models on the probability of spin-off. To select the variables that better fit the model we performed a log-likelihood ratio test (LR) on the Probit model.

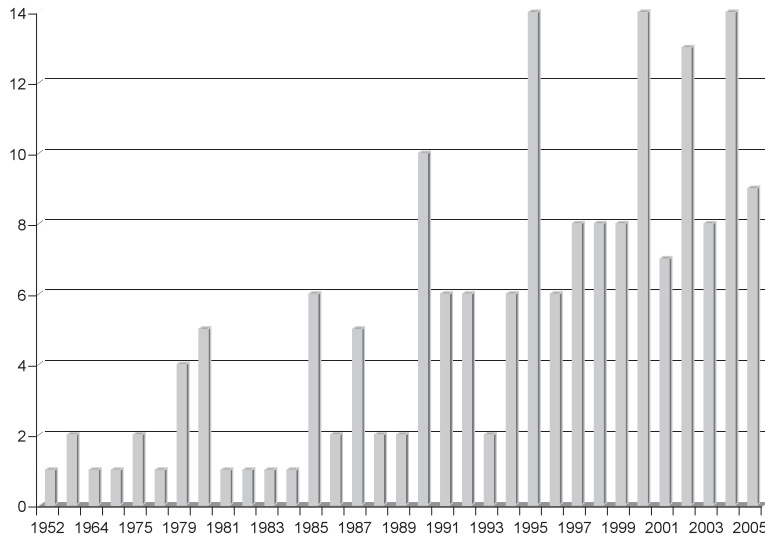
4. Results

4.1. Descriptive Statistics

This descriptive analysis illustrates the main features of the machine tool industry in Queretaro, such as general characteristics of the industry, and the descriptive statistics for the set of variables used in the model.

The machine tool industry in Queretaro is a relatively new industry that had its boom in the early 1990s (Figure 1), where most of the medium and large companies had an increasing interest to downsize their operations and focus in their core business. Many employees from those medium and large companies identified an opportunity and decided to start a new company that would act mainly as a supplier to the parent company.

Figure 1. Year of operations



Source: Authors' own.

Firms in the machine tool industry are mostly micro firms with less than 30 employees per firm. The low number of employees indicates that the role of the entrepreneur is critical for the success of the firm; in most of the cases the entrepreneur makes most of the strategic decisions associated to production, marketing and innovation. From our sample we identified only 6 medium size firms, those firms have also larger size customers and tend to have higher production capabilities than some micro and small size firms (Table 1). The market share of local machine tool firms represents only 10% of the total demand of machine tools in the region, which indicates that if national machine tool firms strengthen their competitiveness and production and innovation capabilities, they could increase their market share, as their main advantage is geographic proximity to potential customers. Most of the employees have a technician level, which could indicate that at the beginning of their carrier they are more involved in production, and only if they gain enough experience, they could get more involved in the decision making process within the firm. We also observed from this industry that tacit knowledge plays a key role in knowledge transfer, were the most experienced employees transfer their knowledge to younger employees through apprenticeship programs.

Table 1. General characteristics of the machine tool industry in Queretaro

	Micro	Small	Medium	Total
Firms	206 (a)	13 (a)	6 (a)	225 (a)
Average of sales/year (US)	\$281,827.11 (d)	\$ 82,500.00 (d)	\$281,250.00 (d)	\$49,083,900.00 (total sales) (d)
Total employees	1,123	305	564	1,992
<i>Engineers</i>	93	19	16	128

	Micro	Small	Medium	Total
<i>Technicians</i>	494	142	459	1,095
<i>Without formal education</i>	362	68	0	430
Firms with quality certification	12 (d)	0 (d)	1 (d)	13 (d)

Source: Authors' own

Notes:

(a) We identified 260 firms, 179 answered the whole survey and 46 only answered general questions, 225 firms in total.

(d) For average sales, employees distribution and firms with quality certification we considered 179 firms.

Firm size: Micro: 0 to 30 employees, Small: 31 to 100 employees, Medium: 101 to 500 employees.

Most of the firms belonging to the machine tools industry have national capital only, while only 4.6% of the firms are either foreign owned or have certain percentage of foreign capital (Table 2). This indicates that most of the entrepreneurs acquired their experience in medium and large companies and then decided to start their own business and finance them with private savings or loans from public or private national banks.

Table 2. National and foreign owned firms

Capital	Firms	Percentage
National	169	94.4%
Foreign	3	1.7%
National and foreign	7	3.9%
Total	179	100.0%

Source: Authors' own

The next table shows the distribution of different variables, including the variables used in the model.

Table 3. Descriptive statistics for key variables

Variable	Kind of variable	Missing values	Mean	SD
Engineering degree	Dummy	8	-	-
Years of formal higher education	Numerical	8	3	2.57
Years of experience	Numerical	6	17.04	11.54
Experience in the parent company	Dummy	10	-	-
Experience in management	Dummy	5	-	-
Experience in production	Dummy	5	-	-
Experience in R&D	Dummy	5	-	-
Experience in quality control	Dummy	5	-	-
Experience in purchasing	Dummy	5	-	-
Experience in sales	Dummy	5	-	-
Linkages with the parent company	Dummy	10	-	-
Geographic proximity to the parent company	Dummy	10	-	-
No. of employees	Numeric	0	11.13	22.43
No. of engineers	Numeric	1	0.72	1.57
% of engineers	Numeric	0	0.10	0.23
CAM programming	Ordinal	31	-	-
Years in the market	Numeric	11	11.11	9.21
Formal contracts with clients	Ordinal	1	-	-
Sells per employee	Numeric	0	3.01	2.01
Projects with suppliers	Ordinal	0	-	-
Projects with clients	Ordinal	0	-	-
Training programs to develop new products	Ordinal	6	-	-
New marketing programs	Ordinal	7	-	-
Product innovation	Numeric	14	1.59	5.85
Process innovation	Numeric	16	1.10	4.45

Source: Authors' own.

4.2. Model

Table 4 presents the results for the Probit model to identify the most important factors that determine the probability to spin-off.

$$SP_i = RV_i b + u_i \quad (1)$$

The results from the Probit model suggest that different factors affect the probability of linking. The most important factors include linkages with the parent company, if those linkages are strong and based on trust and a shared culture; entrepreneurs have an incentive to spin-off as they expect to supply the parent company, similar results were found by Dahlstrand, (1997) and Lindholm (1997), as they identified that strong linkages within the parent company strengthen spin-offs.

Regarding entrepreneurs' education, our results confirm that education level is not as important as the type of degree. Original results from our model suggest that entrepreneurs' with an engineering degree tend to spin-off more than otherwise; on the other hand, years of formal education does not represent any positive or negative impact on the probability to spin-off. Several authors have found that knowledge and experience in the parent company plays an important role in the creation, evolution and success of spin-offs (Amsden, 1989; Agarwal, et al., 2004; and Dahlstrand, 1997). However, our findings suggest that for a mature and low technology sector, entrepreneurs' years of experience are not necessarily related to the probability to spin-off; on the contrary, older employees tend to remain at the parent company, while younger employees are more eager to start their own business after getting some experience in the parent company.

Other original results from this study focus in the analysis of the area of expertise, we found that previous expertise is an important factor that triggers spin-offs, those employees with experience in production and management tend to create more spin-offs than employees with experience in R&D, quality control, purchasing and sales. Similar results were found by Amsden (1985), as he identified that manufacturing experience is particularly important within sectors where knowledge spillovers in the form of tacit knowledge plays a key role, such as in traditional and low technology sectors. Managerial experience is also important as it provides the bases to strategic planning for the evolution and future success of the firm.

Similar to those results by Dahlstrand (1997), we found that spin-offs from the machine tool industry locate in close proximity to their parent companies, if the spin-offs can not locate in the same technology park, at least they try to locate within the same region, this accumulation of firms, human capital and transfer of knowledge and ideas could lead to the creation of a cluster in this particular region.

Table 4. Probit model for spin-offs

	Model
<i>Linkages with the parent company</i>	1.282** (0.473)

	Model
<i>Entrepreneurs' formal education</i>	0.521 (0.462)
<i>Entrepreneurs' engineering degree</i>	0.618*** (0.200)
<i>Years of experience</i>	-0.412** (0.148)
<i>Area of expertise: production</i>	0.190** (0.091)
<i>Area of expertise: management</i>	0.259** (0.122)
<i>Area of expertise: R&D</i>	-0.002 (0.005)
<i>Area of expertise: quality control</i>	0.021 (0.082)
<i>Area of expertise: purchasing</i>	0.212 (0.374)
<i>Area of expertise: sales</i>	0.066 (0.206)
<i>Geographic location</i>	0.314* (0.193)
<i>_cons</i>	-0.978* (0.573)

*p < 0.1; **p < 0.05; ***p < 0.005

5. Conclusions

Several studies argue that knowledge that is transferred within the company generate new forms of interaction and exchange of ideas and provides the perfect environment for the generation of knowledge and future spin-offs (Debackere and Veugelers, 2005; Clarysse and Moray, 2005; López and Martín, 2008). We found that networks and knowledge transfer within the parent company is also important for mature and low technology sectors. Thus to encourage the creation of spin-offs in the machine tool industry, is important to design some schemes to increase the transfer of knowledge within the parent company. The regional government of Queretaro has identified the machine tool industry as a potential industry to strengthen regional capabilities and competitiveness. Several government agencies have developed different development plans for this industry in particular, but most of them do not focus on the important role of networking within the parent company.

Networking between the spin-off and the parent company is crucial for the success of the newly created spin-off, particularly in the machine tool industry, where most of the spin-offs are suppliers, and they share common values and culture, as well as product and quality requirements. We observed that in the machine tool industry the first and most important

customer is usually the parent company, thus it is important to maintain and strengthen the linkages between the spin-off and the parent company. Geographic proximity with the parent company is an important factor for success, as several authors have argued that close proximity increase face to face interaction and exchange of ideas, which is particularly important for mature and low-technology sectors, where most of the knowledge is tacit in nature.

We identified that entrepreneurs' absorptive capacities, given by their education level, type of degree, years of experience and area of expertise play an important role for the creation of spin-offs. Particularly those younger entrepreneurs with an engineering degree, experience in production and management tend to spin-off more, this suggests the importance to incorporate and strengthen managerial training in engineering programs in Mexico. We also identified that some of the spin-offs that are worse off lack of managerial capabilities.

Once the reasons underlying the creation of spin-offs have been identified, is easier to develop policies that are more focused in promoting the creation of spin-offs. Some of the policies that can help the creation, evolution and success of spin-offs in the machine tool industry in Queretaro, Mexico are the following:

1. Exploitation of social networks with parent companies.
2. Foster the creation of linkages between spin-offs and potential customers.
3. Strengthen entrepreneurs' absorptive capacities by fostering engineering programs, and managerial training.
4. Design several schemes of technology and knowledge transfer regarding production techniques.
5. Promote the establishment of spin-offs close to their parent companies.

It is important that once the spin-offs have been created, they design the right strategies to keep building technological capacities through learning and interaction with customers and different organizations in order to increase their market share.

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ASB 2010
Halifax, Nouvelle-Écosse

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TRANSACTIONS BOURSIÈRES DES ADMINISTRATEURS DES GRANDES BANQUES CANADIENNES PENDANT LA DERNIÈRE CRISE FINANCIÈRE¹

L'objectif de cette étude est d'une part, de vérifier si les administrateurs des grandes banques canadiennes obtiennent des rendements anormaux en achetant ou en vendant des actions de leurs banques et, d'autre part, d'évaluer la réaction du marché boursier lorsque cette information est rendue publique. Nos résultats montrent que pendant la dernière crise financière, le marché a réagi de façon plus négative aux opérations de vente qu'aux opérations d'achat. Ils indiquent également que les administrateurs des grandes banques canadiennes ne semblaient pas s'enrichir en achetant des actions et avaient vendues stratégiquement leurs actions à la suite d'une hausse du cours boursier.

Introduction

Au Canada, selon Penny Becklumb (2008)², une transaction d'initié désigne l'achat ou la vente de valeurs mobilières d'une entreprise par un « initié », c'est-à-dire une personne ayant connaissance d'informations confidentielles sur des faits touchant la société qui, auront probablement une influence réelle sur la valeur des actions, alors que les autres actionnaires et le grand public n'ont pas accès à cette information³. En soi, les transactions d'actions par des initiés ne sont pas illégales. Dans la plupart des pays où il existe des lois qui encadrent le commerce d'actions par des initiés, ces derniers peuvent vendre ou acheter des actions des sociétés avec lesquelles ils ont des rapports, à condition qu'ils ne détiennent pas d'informations privilégiées importantes sur ces entreprises. En revanche, si l'initié dispose de renseignements confidentiels sur une société et que ces renseignements peuvent lui être utiles dans ses transactions d'achat ou de vente de titres de cette société, il doit s'abstenir de ces opérations. La réglementation des transactions d'initiés est donc nécessaire à plusieurs égards, car elle constitue un facteur important du développement financier dans un pays [La Porta et al. (1998 ; 2000)]. Notons simplement ici, que l'absence de réglementation permettrait aux initiés d'utiliser des informations confidentielles pour s'enrichir au détriment des investisseurs externes. En conséquence, la réputation de l'entreprise pourrait être entachée et plus grave encore, c'est la confiance dans le marché boursier qui serait mise en cause notamment par un possible problème de liquidité [Fishe et Robe (2004)].

¹ Cette étude est effectuée dans le cadre de la Chaire d'études Jeanne et J.-Louis-Lévesque en gestion financière de l'Université de Moncton. Les auteurs tiennent à la remercier pour sa contribution financière à cette étude.

² Service d'information et de recherche parlementaires, Division du droit et du gouvernement.

³ La définition d'initié est très large. Elle englobe la société même (elle englobe aussi les personnes morales du groupe), les administrateurs ou les dirigeants de la société, les actionnaires qui détiennent plus de 10% des actions de la société, les employés de la société et toute personne (par exemple un avocat ou un comptable de l'entreprise) qui exerce ou qui se propose d'exercer une activité commerciale ou professionnelle avec la société ou pour son compte (ainsi que leurs employés).

La presse Affaires canadienne [Munger (2010)]⁴ rapporte que des dirigeants de la banque de Montréal (BMO) ont récemment vendu plusieurs milliers d'actions ordinaires, empochant d'importants revenus. Ainsi, un dirigeant a vendu 10 000 actions à un prix unitaire de 58,95\$ le 5 mars 2010. Cette transaction a généré un revenu brut de 589 500\$. Un autre président d'une entité de la BMO a liquidé 12 400 actions à la même date. En obtenant un prix légèrement supérieur à 59,31\$ l'unité, il a reçu 735 565\$ en échange de ces actions. Au même moment, un vice-président exécutif a fait la plus grosse vente en s'acquittant de 20 000 actions à un prix unitaire de plus de 60,82\$. Cela lui a rapporté un revenu brut d'à peu près 1,22 M\$. Depuis ces transactions, le titre de la banque a été volatile à la Bourse de Toronto. Il a atteint un sommet de 65,41 \$ le 26 avril 2010, un niveau qui n'avait pas été atteint depuis la fin de l'été 2007⁵.

L'intérêt de notre étude réside dans le fait de s'intéresser aux banques canadiennes qui, de par leur statut, présentent certaines spécificités. Les banques sont en plus d'être des entreprises à part entière, spécifiques à cause de la nature de leurs activités et du rôle important qu'elles jouent dans l'économie nationale et mondiale. Ainsi, il n'est pas sans intérêt de rappeler que la récente crise économique et financière ou crise des *subprimes* qui a secoué le monde était en partie liée à un dysfonctionnement du secteur bancaire⁶. Même si le Canada a été relativement épargné, comparé à certains pays développés, le secteur bancaire doit être davantage encadré par des lois régissant aussi bien la nature des activités à entreprendre que les transactions susceptibles d'être menées par les initiés dans les banques canadiennes car selon Cole et al. (2008), la croissance économique dépend aussi d'une réglementation de ces types de transaction. En effet, Fische et Robe (2004) ont montré que les transactions d'initiés affectent négativement la liquidité du marché qui est par ailleurs un indicateur clés de croissance du marché boursier.

L'objectif de cette recherche est d'étudier les comportements des membres du conseil d'administration des six grandes banques canadiennes⁷ en transigeant les titres détenus dans les entreprises qu'ils dirigent pendant la dernière crise financière et d'évaluer la perception du marché relativement aux opérations de bourse effectuées par ces derniers. Il s'agit là d'un sujet pertinent pour les chercheurs et les investisseurs d'un côté et pour les autorités chargées de la réglementation des marchés financiers de l'autre, dans la mesure où, pour tout gain tiré d'une transaction financière, il y a forcément un perdant en contrepartie (Dymke et Walter, 2008). Une telle perte est particulièrement intolérable si le gain est réalisé par un initié du fait de sa position

⁴ Voir Argent - TVA du 10 mai 2010.

⁵ Les transactions d'initiés sont monnaie courante dans les banques canadiennes. Ainsi, de mai à juillet 2009, il y a eu 139 transactions de dirigeants et administrateurs de banques canadiennes pour un montant total de 103 millions de dollars. Les banquiers ont ainsi globalement encaissé un profit brut de près de 40 millions de dollars. Avant cela, les initiés des banques canadiennes avaient massivement vendu des actions au printemps et à l'été 2008, soit juste avant la magistrale dégringolade de la Bourse à l'échelle mondiale. À l'instar des titres de tous les secteurs boursiers, les titres des banques canadiennes s'étaient momentanément effondrés de quelque 50% par rapport à leur sommet historique. Toutefois, depuis le début de l'année 2009, les titres des six grandes banques canadiennes ont fortement augmenté, les hausses allant de 27 à 80%. La capitalisation boursière des banques canadiennes, c'est-à-dire la valeur des actions en circulation, s'est ainsi appréciée de 66 milliards de dollars au cours des sept premiers mois de l'année 2009, passant de 163 à 229 milliards.

⁶ La crise des subprimes va alors précipiter la faillite de Lehman Brothers, entraîner une profonde modification du paysage bancaire et faire connaître aux grandes places boursières, de fortes variations. Ainsi, du 1er janvier au 24 octobre 2008, le CAC 40 (France) baisse de 43,11%, le Dax (Allemagne) de 46,75%, le FTSE 100 (Royaume-Uni) de 39,86%, le Nikkei (Japon) de 50,03% et le Dow Jones (États-Unis) de 36,83%.

⁷ Il s'agit de la Banque de la Nouvelle-Écosse, la Banque Canadienne Impériale de Commerce, la Banque de Montréal, la Banque Nationale, la Banque Royale du Canada et la Banque Toronto-Dominion.

privé dans l'entreprise et au détriment de tous les autres actionnaires non informés, voir même de l'ensemble du marché. Soulignons aussi que ce sont les administrateurs qui ont la responsabilité ultime de superviser la direction et la gestion des sociétés publiques. En même temps, ces administrateurs sont souvent rémunérés sous forme de stock-options et détiennent de ce fait, un nombre important d'actions dans les banques qu'ils dirigent. Ce faisant, les administrateurs se retrouvent dans une position de conflit d'intérêts en étant à la fois actionnaires et dirigeants. Pour contrer ces éventuels conflits d'intérêts, il incombe aux autorités chargées de la réglementation des marchés financiers d'ériger des règles permettant d'éviter tout comportement des administrateurs qui puissent nuire au bon fonctionnement du marché. Au regard de ce qui précède, notre étude soulève plusieurs questions de recherche. 1) Les membres du CA des grandes banques canadiennes ont-ils obtenu des rendements anormaux en transigeant les actions de leur banque? Si tel est le cas, les investisseurs ont-ils à leur tour réalisé un rendement anormal à court terme en imitant le comportement transactionnel des administrateurs? 2) Comment le marché boursier canadien a-t-il réagi aux transactions effectuées par ces initiés des grandes banques durant la dernière crise financière? A-t-il été plus sensible aux transactions d'achat ou de vente d'actions effectuées par les administrateurs?

Le présent article est organisé comme suit. Nous présentons dans la première section un aperçu de la réglementation canadienne sur les transactions d'initiés. La deuxième section sera consacrée à une revue succincte de la littérature sur les transactions d'initiés. Ensuite, dans la troisième section, nous présenterons les données et la méthodologie utilisée dans l'étude empirique. Enfin, nous terminerons dans la quatrième section par la présentation et l'interprétation des résultats. Nos résultats indiquent que pendant la dernière crise financière, le marché a réagi plus négativement aux opérations de vente qu'aux opérations d'achat. Ils attestent que les administrateurs des grandes banques canadiennes ne semblaient pas s'enrichir en achetant des actions et avaient vendu stratégiquement leurs actions à la suite d'une hausse du cours boursier.

Aperçu sur la réglementation canadienne des transactions d'initiés

Le gouvernement fédéral et les gouvernements provinciaux du Canada sont les seules instances à élaborer des lois sur les transactions d'initiés. Les provinces ont la compétence de légiférer en matière de droits de propriété et de droits civils alors que le gouvernement fédéral, par le biais du parlement fédéral a la compétence de créer des lois régissant les sociétés fédérales. Au niveau provincial, les transactions d'initiés sont réglementées par les lois provinciales sur les sociétés et sur les valeurs mobilières⁸. Les sociétés constituées au niveau fédéral conformément à la loi canadienne sur les sociétés par actions (désormais LCSA) sont quant à elles soumises aux dispositions sur les transactions d'initiés contenues dans ces lois.

Selon la LCSA, « l'initié qui vend ou achète des valeurs mobilières de la société tout en ayant connaissance d'un renseignement confidentiel dont il est raisonnable de prévoir que, s'il était généralement connu, il provoquerait une modification sensible du prix de toute valeur mobilière de la société, est tenu d'indemniser le vendeur ou l'acheteur des valeurs mobilières, selon le cas, qui a subi des dommages par suite de cette opération »⁹. Par conséquent, l'individu qui réalise avec un initié une transaction portant sur des valeurs mobilières de la société peut poursuivre celui-ci afin d'obtenir une compensation sur les pertes subies et l'entreprise peut le poursuivre pour réclamer les profits qu'il a réalisés au moyen de la transaction d'initié.

⁸ Par valeurs mobilières, on entend les valeurs mobilières classiques telles que les actions et les obligations d'abord, mais aussi les options de vente ou d'achat ou les autres droits ou obligations d'acheter ou de vendre des valeurs mobilières de la société.

⁹ Voir le Service d'information et de recherche parlementaires

La bourse de Toronto recommande aux sociétés inscrites qu'elles soient dotées d'une règle rigoureuse qui interdit aux personnes ayant accès à l'information privilégiée, d'effectuer des opérations sur les titres de la société tant que l'information n'a pas été divulguée au grand public et qu'un délai raisonnable ne s'est pas écoulé pour en permettre la divulgation par l'initié. Par divulgation, on entend la communication des renseignements confidentiels par l'initié à une autre personne pour l'usage de celle-ci. Ce faisant, un initié ne peut diffuser aucun renseignement aux membres de sa famille, à des amis ou à quiconque dans le but de leur faciliter la prise de décision concernant l'achat ou la vente de valeurs mobilières de la société.

Une revue succincte de la littérature sur les transactions d'initiés

Il existe une littérature vaste et récente sur les transactions d'initiés [Voir par exemple Kolasinki et Li (2010) ; Betzer et Theissen (2009 ; 2010) ; Kallunki et al. (2009) ; Aktas et al. (2008) ; Dymke et Walter (2008) ; Cole et al. (2008) ; Durnev et Nain (2007) ; Ke et al. (2003)], même si à notre connaissance, aucune étude ne s'est particulièrement intéressée aux initiés des entreprises du secteur bancaire. Durant ces trente (30) dernières années, la littérature économique et financière s'est particulièrement intéressée aux transactions menées par les initiés des entreprises.

Certains travaux s'intéressaient à la date où la transaction d'initiés a effectivement eu lieu. Ainsi, aux États-Unis, Jaffe (1974), Finnerty (1976), Seyhun (1986) et Lakonishok et Lee (2001), trouvent que les initiés sont en mesure d'obtenir des rendements anormaux en exploitant dans une certaine mesure, l'information privilégiée. L'efficacité des marchés financiers sous sa forme forte est donc mise en cause¹⁰. Plus récemment, certaines études ont été effectuées dans d'autres pays. Par exemple, selon, Dymke et Walter (2008), en considérant une période de 20 jours entourant la date de la transaction, les initiés des entreprises allemandes obtiennent un rendement anormal cumulé de 4,3% sur les achats et de -1,47 % sur les ventes. Les administrateurs réalisent un profit de plus de 4% sur les transactions (achats) non suivies de communiqués de presse ad-hoc, alors même que sur ce genre d'opérations, les directeurs et d'autres initiés n'obtiennent que respectivement un rendement de 1,81% et 2,12%. En Allemagne, les transactions d'initiés sont associées à des rendements anormaux élevés [Betzer et Theissen (2009 ; 2010)]. Les transactions d'initiés d'entreprises allemandes précédant les annonces de bénéfices ont un impact sur les cours des valeurs mobilières. Ce qui d'après les auteurs, constitue un argument légitimant l'interdiction faite par le Royaume-Uni aux initiés d'entreprises de mener des transactions sur des valeurs mobilières avant les publications de résultats. Des résultats similaires ont été obtenus au Royaume-Uni (Fidrmuc, Goergen et Renneboog, 2006) et à Londres (Friederich et al., 2002).

Dans cette étude, nous nous intéressons aussi à la littérature qui s'accorde sur le fait que les initiés réalisent des profits anormaux élevés lors des transactions de valeurs mobilières. Toutefois, notre étude se démarque des autres, du fait qu'elle s'intéresse à un groupe particulier d'initiés, soient

¹⁰ En effet, la théorie de l'efficacité stipule que les marchés financiers incorporent les conséquences des événements passés et reflètent précisément les anticipations des investisseurs sur les événements futurs. Ainsi, tous les événements connus ou anticipés sont intégrés dans les cours actuels, et il serait donc inutile de chercher à prévoir au moyen de quelque modèle mathématique que ce soit des variations futures de cours. On peut dire que les marchés sont efficaces quand les investisseurs possédant une information privilégiée ou un monopole sur certaines informations (par exemple les initiés) sont incapables d'avoir une influence sur le prix des titres, ce qui sera vrai pour autant que les autorités chargées de la réglementation des marchés pourront empêcher et réprimer les délits d'initiés. Toutefois, certains spécialistes pensent qu'il ne faudrait pas réprimer le délit d'initié, parce qu'il permettrait d'incorporer plus rapidement de nouvelles informations dans les cours, rendant ainsi les marchés financiers plus efficaces.

les membres des CA des grandes banques canadiennes pendant la crise financière. Ainsi, nous posons les deux hypothèses suivantes :

H1a : Les membres du CA des grandes banques canadiennes obtiennent des rendements anormaux lorsqu'ils achètent des actions de leur banque.

H1b : Les membres du CA des grandes banques canadiennes obtiennent des rendements anormaux lorsqu'ils vendent des actions de leur banque.

Une autre série de travaux mettaient l'accent sur la réaction du marché boursier consécutive aux transactions d'initiés sur la possibilité pour les investisseurs d'obtenir des rendements anormaux en imitant simplement les transactions d'initiés [Jaffe (1974), Finnerty (1976), Seyhun (1986) et Fidrmuc et al. (2006)]. Les résultats de ces études indiquent que le marché réagit significativement aux annonces de transactions d'initiés et qu'en l'absence de coûts de transaction, les investisseurs sont en mesure d'obtenir des rendements anormaux en imitant les transactions d'initiés. Par exemple, à partir d'un échantillon constitué de 10 140 transactions d'achat et de 5 523 transactions de vente, Fidrmuc et al. (2006) trouvent que le rendement anormal cumulé aux jours [0;1] est de 1,16% pour l'annonce d'achat d'actions par les initiés et de -0,26% pour l'annonce de vente d'actions par les initiés. Les études de Jaff (1974), Finnerty (1976) et de Seyhun (1986) s'intéressent à des périodes plus longues suivant la date d'annonce des opérations de bourse et ces auteurs trouvent, dans l'ordre, les résultats suivants : rendement anormal cumulé (RAC) de 2% sur 2 mois, RAC entre 4,8% et 8,3% sur 11 mois et RAC de 1,1% pour les achats et de 0,9% pour les ventes sur 20 jours. À la suite de ce qui précède, nous pensons que, omission faites des coûts de transaction, les investisseurs sont en mesure d'obtenir des rendements anormaux en imitant les transactions des membres du CA des grandes banques canadiennes, d'où les deux hypothèses suivantes :

H2a : Les investisseurs sont en mesure d'obtenir des rendements anormaux en imitant les transactions d'achats des membres du CA des grandes banques canadiennes.

H2b : Les investisseurs sont en mesure d'obtenir des rendements anormaux en imitant les transactions de ventes des membres du CA des grandes banques canadiennes.

La théorie des signaux, mise au point par Miller et Modigliani en 1961 et reprise par plusieurs auteurs [Bhattacharya (1979); Miller et Rock (1985); Ofer et Thakor (1987)] a d'abord été appliquée aux dividendes. En considérant que les initiés possèdent davantage d'information sur la valeur de la société que les autres investisseurs, il est possible de détecter certains signaux en observant leurs prises de décisions. Cette intuition initiale a ensuite été étendue à d'autres décisions financières telles que les opérations de bourse effectuées par les initiés. Ainsi, nous pensons que les transactions effectuées par les membres du CA des grandes banques canadiennes peuvent envoyer un signal au marché, d'où les deux hypothèses suivantes :

H3a : Le marché boursier canadien réagit positivement à l'annonce d'une opération d'achat effectuée par les membres du CA des grandes banques canadiennes.

H3b : Le marché boursier canadien réagit négativement à l'annonce d'une opération de vente effectuée par les membres du CA des grandes banques canadiennes.

À l'aide d'un échantillon de transactions d'initiés de 6 925 firmes américaines, Kolasinski et Li (2010) étudient la façon dont la publication des prix et des résultats influence les stratégies transactionnelles des initiés. Selon les auteurs, les initiés achètent plus et vendent moins lorsqu'un titre sous-réagit à une annonce de bons résultats que s'il sous-réagit à une annonce de mauvais résultats. Autrement dit, d'un côté, les initiés achètent massivement à la suite d'une publication de bons résultats qui est suivie d'une sous-évaluation du cours des actions. De l'autre, ils sont peu enclins à acheter après l'annonce de pertes même si celle-ci est suivie d'une réaction haussière du cours des actions. Kolasinski et Li (2010) corroborent la thèse selon laquelle, les initiés possèdent des « qualités » de jugement et prédiction quant à la façon dont les titres de leurs firmes reflètent

correctement l'information publiée (Seyhun, 1986). Les initiés sont ainsi capables d'identifier les tendances macroéconomiques qui influencent les marchés. Par exemple, lors du crash boursier de 1987, Seyhun (1990) souligne que les initiés ont massivement acheté et que ces achats ont été très profitables, bénéficiant ainsi de la surréaction du marché à cette crise boursière. Abondant dans le même sens, Ke et al. (2003) indiquent que les initiés réalisent des transactions rentables en anticipant des coupures « *breaks* » dans les résultats attendus : ils vendent (achètent) juste avant un pic (un repli) des résultats attendus. Ainsi, il est aussi de notre avis que les membres du CA effectuent leurs opérations boursières de façon stratégique, ce qui nous incite à poser les deux hypothèses suivantes :

H4a : Les achats d'actions par les membres du CA des grandes banques canadiennes sont précédés par une sous-performance boursière des émetteurs que les dirigeants essaient d'exploiter.

H4b : Les ventes d'actions par les membres du CA des grandes banques canadiennes sont précédées par une surperformance boursière des émetteurs que les dirigeants essaient d'exploiter.

Les études ayant porté sur l'évaluation du rendement anormal (RA) à la suite des transactions d'initiés obtiennent généralement un RA supérieur pour les opérations d'achat que les opérations de vente [Fidrmuc et al. (2006) ; Dymke et Walter (2008)]. Toutefois, ces études portaient sur une période boursière à la hausse. Étant donné que la période de notre étude se caractérise par un marché boursier dont la tendance est fortement à la baisse, nous pensons que les transactions boursières liées aux ventes d'actions obtiendront des rendements anormaux supérieurs à ceux obtenus des opérations d'achat d'actions. Dans le même ordre d'idées, nous pensons que le signal perçu par les investisseurs sera plus fort pour les opérations de ventes étant donné que ces dernières sont en harmonie avec la tendance boursière à la baisse. D'où les deux hypothèses suivantes :

H5a : Les membres du CA des grandes banques canadiennes obtiennent des rendements anormaux supérieurs en vendant qu'en achetant des actions de leur banque

H5b : Le marché réagit davantage aux annonces de ventes d'actions qu'aux annonces d'achat par les membres du CA des grandes banques canadiennes.

Données et méthodologie

Les données

L'échantillon a été sélectionné à partir du système électronique de déclaration des initiés (SEDI)¹¹. Ce système permet de consulter les déclarations d'initiés qui doivent être disponibles au public selon la réglementation canadienne sur les valeurs mobilières¹². Ainsi, nous avons répertorié toutes les opérations d'achat et de vente d'actions faites par les administrateurs des six grandes banques canadiennes (Banque de la Nouvelle-Écosse, Banque Canadienne Impériale de Commerce, Banque de Montréal, Banque Nationale, Banque Royale du Canada et Banque Toronto-Dominion) entre 2006 et 2008 ; soit au total, 266 opérations d'achat et 61 opérations de vente. Précisons également que les rendements du marché et les rendements journaliers des actions entourant la date de l'opération et la date de dépôt ont été obtenus dans la base de données

¹¹ www.sedi.ca

¹² Pour chaque transaction d'initiés, SEDI fournit le nom de la compagnie, son symbole boursier, le nom de l'initié, sa relation avec la compagnie émettrice, le numéro de l'opération, la date de la transaction, la date de dépôt dans SEDI, la désignation du titre, la nature de l'opération, le nombre de titres acquis ou aliénés ainsi que leur prix.

TSX-CFMRC¹³. Le tableau ci-dessous présente le nombre et la valeur monétaire des opérations d'achat et de vente d'actions effectuées par les administrateurs des six grandes banques canadiennes de 2006 à 2008. L'analyse du tableau 1 montre qu'en ce concerne les opérations d'achat d'actions, les administrateurs de la Banque Nationale arrivent en tête du classement. Ainsi, ils ont effectué 60 transactions pour une valeur totale de 511 780\$ en 2006, 56 transactions pour une valeur totale de 463 682\$ en 2007 et 58 transactions pour une valeur totale de 618 419\$ en 2008. Cependant, si on privilégie plutôt la valeur des transactions, on note que la palme revient en 2006 (4 007 584\$ en 8 transactions) et 2007 (1 972 350 en une seule transaction) aux administrateurs de la Toronto-Dominion. Si les administrateurs de cette banque n'ont réalisé aucune opération d'achat d'actions en 2008, les dirigeants de la Banque de Nouvelle-Écosse ont acquis des titres de leur banque au prix fort pour une valeur de 1 246 821\$. Pour ce qui est des opérations de vente, on constate que les administrateurs de la Banque Nationale et de la Banque Royale du Canada ont procédé particulièrement en 2006 et 2007, à des ventes substantielles d'actions. Alors que les dirigeants de la Banque Nationale ont empoché 9 235 678\$ en 2006, 47 385 393\$ en 2007, et 14 628 318\$ en 2008 ceux de la Banque Royale du Canada ont obtenu 20 487 313\$ et 19 998 336\$ respectivement en 2006 et 2007.

¹³ Toronto Stock Exchange – Canadian Financial Markets Research Center.

Tableau 1 : Opérations d'achat et de vente d'actions effectuées par les administrateurs des grandes banques canadiennes (en nombre de transactions et en \$)

	2006			2007			2008		
	Nombre de transactions	Valeur (\$)	Nombre de transactions	Valeur (\$)	Nombre de transactions	Valeur (\$)	Nombre de transactions	Valeur (\$)	
Partie A : Achats									
Banque de la Nouvelle-Écosse	1	8 037\$	13	1 748 618\$	7	1 246 821\$			
Banque Canadienne Impériale de Commerce	2	58 104	6	94 157	5	56 530			
Banque de Montréal	2	260 708	2	380 777	12	674 274			
Banque Nationale	60	511 780	56	463 682	58	618 419			
Banque Royale du Canada	11	611 361	5	429 403	17	813 400			
Banque Toronto-Dominion	8	4 007 584	1	1 972 350	0	0			
Total		<u>5 457 572\$</u>		<u>5 088 937\$</u>		<u>3 409 445\$</u>			
Partie B : Ventes									
Banque de la Nouvelle-Écosse	2	5 928 774\$	4	5 139 785\$	0	0\$			
Banque Canadienne Impériale de Commerce	1	73 110	0	0	0	0			
Banque de Montréal	1	68 980	0	0	7	364 238			
Banque Nationale	6	9 235 678	4	47 385 393	9	14 628 318			
Banque Royale du Canada	11	20 487 313	10	19 998 336	4	445 733			
Banque Toronto-Dominion	2	255 597	0	0	0	0			
Total		<u>36 049 435\$</u>		<u>32 523 514\$</u>		<u>15 438 289\$</u>			

Le tableau ci-dessus montre que la valeur totale des opérations de vente d'actions est de loin supérieure à celle des opérations d'achat d'actions. Cela laisse supposer que les administrateurs des six grandes banques canadiennes auraient anticipé une baisse du cours des actions pendant cette période 2006-2008 marquée par la crise financière et en auraient profité pour vendre massivement leurs actions. Cette hypothèse est confortée par l'évolution de l'indice *S&P/TSX Capped Financial* pour la période 2005-2009 entourant les dates de notre étude. Cet indice est constitué de 26 plus grandes institutions financières cotées sur le marché boursier canadien, incluant donc les six grandes banques canadiennes. Comme on peut le vérifier sur Thomson One, cet indice a connu une baisse considérable à partir d'août 2007 et ce, jusqu'en mars 2009. Ainsi, si les membres des CA des grandes banques ont anticipé cette chute, il est donc logique d'observer des ventes importantes d'actions comme nous venons de le constater au tableau 1.

Méthodologie

Nous avons tout d'abord calculé le rendement anormal pour les jours qui entourent la date des opérations d'achat et de vente d'actions et la date de dépôt de celles-ci de dans SEDI. Pour ce faire, les rentabilités journalières des titres sont comparées à leur rentabilité normale, c'est-à-dire au rendement théorique du même jour s'il n'y avait pas eu de transactions effectuées sur le marché boursier par les administrateurs des banques en tenant compte des conditions économiques qui prévalent sur le marché à cette date. À la date des transactions, les rendements anormaux (excès du rendement observé sur le rendement normal) permettront de mettre en évidence si les administrateurs s'enrichissent anormalement lorsqu'ils achètent et vendent des titres de leur banque. Il est également possible de vérifier si le rendement anormal relatif aux opérations de vente d'actions est supérieur à celui des opérations d'achat d'actions. À la date de dépôt, les rendements anormaux seront considérés comme une mesure de l'impact de l'information signalée au marché. Étant donné que le dépôt d'une opération d'achat devrait signaler de l'information positive au marché, on s'attend à un rendement anormal positif suite au dépôt d'une opération d'achat et puisque la vente d'actions devrait signaler de l'information négative au marché, on s'attend à un rendement anormal négatif suite au dépôt d'une opération de vente. Nous pourrions enfin vérifier si le signal qui découle du dépôt d'une opération de vente est supérieur au signal résultant du dépôt d'une opération d'achat en comparant les rendements anormaux.

Les notations pour la modélisation des rendements anormaux et les procédures de tests sont largement inspirées de MacKinlay (1997). La date de l'opération et la date de dépôt constituent la date de l'évènement soit le jour [0]. Nous définissons différents intervalles entourant la date de l'opération et la date de dépôt. La fenêtre d'estimation, qui doit être neutre en événement, est constituée des jours [-250] à [-220], la période d'évènement relative à la date de l'opération est représentée par les jours [-30] à [+30] alors que la période d'évènement relative à la date de dépôt est représentée par les jours [-10] à [+10]. Une période d'évènement plus longue pour la date de l'opération est nécessaire pour observer l'évolution du cours boursier avant et après l'opération.

La rentabilité anormale est définie par la différence entre la rentabilité observée et la rentabilité théorique. Cette dernière représente la rentabilité qui aurait dû avoir lieu en l'absence

d'événements. À l'instar de Brown et Weinstein (1985), nous utilisons le modèle de marché¹⁴ pour estimer le rendement normal. Dans ce cas, le rendement anormal devient :

$$RA_{i\tau} = R_{i\tau} - (\alpha_i + \beta_i R_{mt})$$

Avant d'effectuer les tests statistiques, il convient de regrouper les titres en fonction du calendrier de l'événement pour permettre de calculer la rentabilité anormale journalière moyenne et la rentabilité anormale moyenne cumulative de l'échantillon.

Le rendement anormal moyen (RAM)¹⁵ au jour [0] = $\frac{1}{N} \sum_{i=1}^N RA_{i\tau}$
Où N est la taille de l'échantillon.

Le rendement anormal moyen cumulatif journalier au temps τ_1 relativement au temps τ_2 [RAMC¹⁶_(τ_1, τ_2)] se calcule comme suit :

$$= \sum_{\tau=\tau_1}^{\tau_2} RA_{\tau_i}$$

Pour tester notre hypothèse selon laquelle les administrateurs des banques obtiennent un rendement anormal en transigeant sur le marché boursier, nous testons deux hypothèses nulles : l'une sur le rendement anormal moyen (RAM)¹⁷ et l'autre sur le rendement anormal moyen cumulatif (RAMC)¹⁸. Précisons que le RAMC est calculé pour différentes sous-périodes entourant la date d'annonce.

¹⁴ Les paramètres du modèle de marché sont estimés sur la période d'estimation de 220 jours. Aussi, l'indice de marché utilisé dans cette étude est celui du *TSX (CFMRC equal)*. Cet indice est constitué des rendements journaliers moyens de tous les titres de capital-action domestiques de la base de données CFMRC (*Canadian Financial Market Research Center*).

¹⁵ Lorsque la période d'évènement est grande, sa variance est : $VAR(RAM_{\tau}) = \frac{1}{N^2} \sum_{i=1}^N \sigma_{\varepsilon_i}^2$

¹⁶ Lorsque L_1 est grand, la variance du rendement anormal moyen cumulatif devient :

$$VAR(RAMC_{(\tau_1, \tau_2)}) = \sum_{\tau=\tau_1}^{\tau_2} VAR(RAM)_{\tau} = (\tau_2 - \tau_1 + 1) \sigma_{\varepsilon_i}^2$$

¹⁷ Pour tester si le RAM du portefeuille est statistiquement différent de 0 le jour [0], on calcule la statistique t suivante : $t = RA_{\tau} / \hat{\sigma}(RA_{\tau})$

¹⁸ Pour tester si le rendement anormal cumulatif de t à $t+n$, $RAMC_t^{t+n}$ est significativement différent de zéro, on effectue le test statistique suivant : $t = RAMC_t^{t+n} / \hat{\sigma}(RAMC_t^{t+n})$

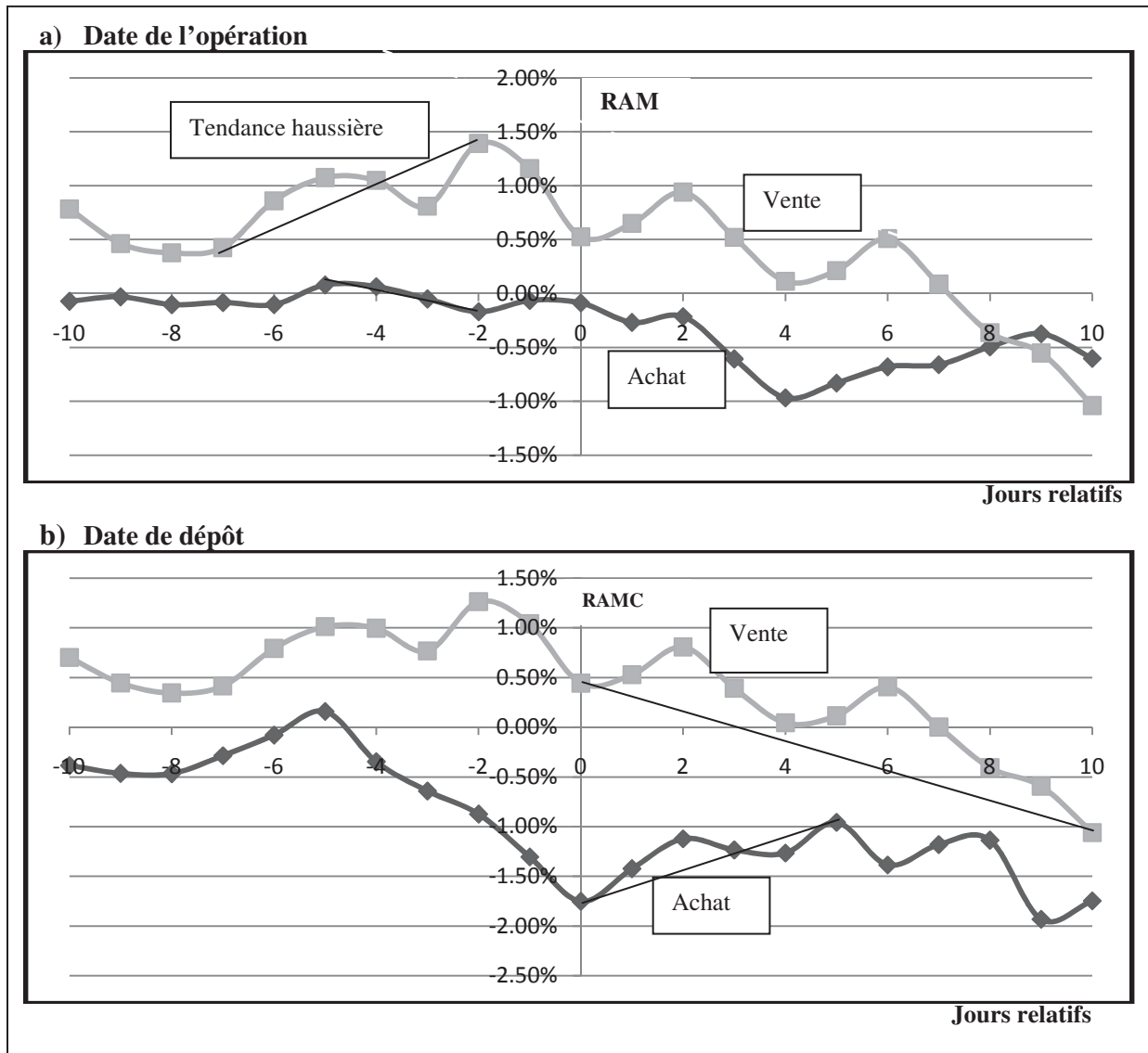
Résultats

Il faut rappeler que l'objectif de notre étude est d'une part, de vérifier si durant la dernière crise financière, les administrateurs des grandes banques canadiennes obtiennent des rendements anormaux en achetant ou en vendant des actions de leurs banques et, d'autre part, d'évaluer la réaction du marché boursier lorsque cette information est rendue publique.

Comportement transactionnel des administrateurs de grandes banques canadiennes

Les membres du CA des grandes banques canadiennes ont-ils réalisé des rendements anormaux en transigeant sur les actions de leur banque? La figure 1a présente le RAMC à partir du 10^{ième} jour précédant l'annonce jusqu'au 10^{ième} jour suivant l'annonce d'une transaction d'achat et d'une opération de vente d'actions par les administrateurs des grandes banques canadiennes. Cette figure montre que d'une part, les administrateurs ne semblent pas s'enrichir en achetant des actions et, d'autre part, atteste d'un rendement anormal négatif suite aux opérations de ventes. Ces résultats sont confirmés au tableau 2 qui présente les tests sur les RAM et RAMC. En effet, la partie A du tableau 2 indique que nous obtenons un RAMC négatif et significatif suite aux opérations d'achat des administrateurs (RAMC [0;3], RAMC [0;5] RAMC [0;10]). Ces résultats sont contraires à notre hypothèse H1a ainsi qu'à plusieurs études antérieures [Jaffe (1974); Finnerty (1976); Seyhun (1986) et Lakonishop et Lee (2001)] et sont attribuables à la récente crise financière qui caractérise la période de notre étude. Toutefois, comme prévu, nous obtenons un RAMC négatif suite aux opérations de vente effectuées par les administrateurs (RAMC [0;3], RAMC [0;5] RAMC [0;10]), ce qui est conforme avec notre hypothèse H1b et corrobore les résultats des études antérieures. Ainsi, Dymke et Walter (2008) ont obtenu un RAMC [0;10] de -0,84% alors que pour la même période nous obtenons un RACM de -2,20%. Par ailleurs, les travaux antérieurs comme ceux de Lakonishok et Lee (2001) et Dymke et Walter (2008) attestent que les opérations d'achat, contrairement aux transactions de vente, permettent aux initiés de s'enrichir davantage. En effet, les opérations de vente d'actions peuvent, à la différence des transactions d'achat, avoir lieu pour des motivations autres que la recherche de profits. Cependant, les tests statistiques de notre étude montrent, conformément à notre hypothèse H5a, qu'en période de crise financière les opérations de vente procurent un rendement anormal sur 10 jours significativement supérieur au rendement anormal procuré par les opérations d'achat (voir la partie A du tableau 2 où le RAMC [0;10] est de -1,66% significativement inférieur aux opérations d'achat). Ceci semble indiquer que c'est la tendance du marché qui permettrait aux initiés de s'enrichir davantage sur les opérations de vente ou les opérations d'achat. Dans un marché haussier, les opérations d'achat rapporteront davantage alors que dans un marché baissier, les opérations de ventes seront les plus profitables.

Figure 1 : RAMC entourant la date de l'opération et la date de dépôt pour 266 transactions d'achat et 61 transactions de vente d'actions effectuées par les administrateurs des grandes banques canadiennes



Les investisseurs s'enrichissent-ils en imitant les opérations d'achat et de vente effectuées par les administrateurs ? La figure 1b présente aussi le RAMC à partir du 10^{ème} jour précédant le jour du dépôt jusqu'au 10^{ème} jour suivant le jour du dépôt des opérations d'achat et de vente d'actions par les membres du conseil d'administration des grandes banques canadiennes. Dans un premier temps, nous remarquons une tendance haussière du RAMC du jour +1 jusqu'au jour +5 et

atteignant -0,96%. Nos résultats indiquent un rendement anormal négatif le jour du dépôt d'une opération de vente et une tendance à la baisse pour les jours suivants la date de dépôt de l'opération de vente par les membres du CA, atteignant un RAM de -1,06% au jour +10. Toutefois, les résultats de tests ne semblent pas concluants pour les opérations d'achat. En effet, la partie B du tableau 2 indique des signes divergents pour les RAMC des périodes [0 ;3], [0 ;5] et [0 ;10] et que les tests sont peu significatifs. Contrairement aux études antérieures comme celle de Fidrmuc et al. (2006), nous n'obtenons donc aucun support pour notre hypothèse H2a. Néanmoins, il semble que les investisseurs soient en mesure de profiter de l'information connue des administrateurs en imitant leurs transactions de vente (H2b). En effet, on observe des RAMC significatifs de -0,65%, -0,92% et -2,10% pour les périodes [0 ;3] , [0 ;5] et [0 ;10] respectivement. Ces derniers résultats sont conformes à notre hypothèse H2b et corroborent les conclusions auxquelles est parvenu [Seyhun (1986 ; 1990)].

Pour mieux comprendre le comportement des administrateurs relativement aux opérations qu'ils effectuent sur les titres de leurs banques, nous étudions aussi l'évolution du cours avant la date de transaction. Nous constatons ainsi à la figure 1a que la date de l'opération de vente est précédée d'une tendance à la hausse des jours -7 à -2 et d'un rendement anormal positif cumulé de 1,39% au jour [-2] et de 1,16% au jour [-1]. Il semblerait donc que les administrateurs aient vendu stratégiquement leurs actions à la suite d'une hausse du cours boursier et que cette annonce soit suivie d'une diminution du cours. Quant aux opérations d'achat, on constate une très faible baisse du cours avant la date de transactions. Toutefois, contrairement à ce que prédit l'hypothèse H4a, la partie A du tableau 2 présente des RAMC non significativement différents de zéro avant la date d'opération d'achat d'actions. Pour les opérations de vente, les résultats indiquent, conformément à notre hypothèse H4b, que les administrateurs ont vendu des actions à la suite d'une hausse significative du cours (voir les RAMC positifs et significatifs des périodes suivantes : RAMC [-30;-1], RAMC [-20;-1] RAMC [-10;-1]). En outre, nous constatons que le cours des titres a effectivement chuté à la suite de la vente des titres (voir les RAMC négatifs et significatifs des périodes suivantes : RAMC [0;3], RAMC [0;5] RAMC [0;10]). Notons également que le RAMC des périodes ci-haut mentionnées était significativement plus élevé avant l'opération de vente d'actions comparativement au RAMC avant la date d'une opération d'achat de 4,35%, 3,25% et 1'23% respectivement. Ces résultats semblent indiquer que les administrateurs des grandes banques canadiennes se sont servis de leurs connaissances pour effectuer leurs transactions puisque pour la période précédant la vente, les titres vendus ont dégagé une performance significativement supérieure à celle des titres achetés [Seyhun (1986)]. Bref, ces résultats indiquent que les administrateurs ont vendu stratégiquement leurs actions à la suite d'une hausse significative du cours, qu'ils ont vendu leurs actions en anticipant que les cours vont diminuer et qu'ils se servent d'informations privilégiées pour obtenir de meilleurs rendements que celui du marché. Ces résultats corroborent ceux de Ke et al. (2003) dont l'étude portait sur un ensemble d'initiés, incluant-, le chef de la direction, le directeur financier, les administrateurs et les membres de la direction.

Tableau 2 : Test sur le RAM et le RAMC

Jour de Bourse	Achat (N=266)	Vente (N=61)	Différence
Partie A : Date de l'opération			
RAMC [-30;-1]	0,06%	4,41% ^{***}	4,35% ^{***}
RAMC [-20;-1]	0,28%	3,53% ^{***}	3,25% ^{***}
RAMC [-10;-1]	-0,07%	1,16% ^{**}	1,23% ^{**}
RAMC [0;3]	-0,54% ^{***}	-0,95% ^{***}	-0,41%
RAMC [0;5]	-0,76% ^{***}	-0,64% ^{**}	0,12%
RAMC [0; 10]	-0,54% ^{**}	-2,20% ^{***}	-1,66% ^{***}
Partie B : Date de dépôt			
RAM[-1]	-0,43% ^{***}	-0,22%	0,21%
RAM[0]	-0,45% ^{***}	-0,60% ^{***}	-0,15%
RAM[1]	0,33% ^{***}	0,09%	-0,24%
RAM[2]	0,30% ^{***}	0,28%	-0,02%
RAM[3]	-0,11%	-0,42% [*]	-0,31%
RAMC [0;3]	0,35% [*]	-0,92% ^{***}	-1,27% ^{***}
RAMC [0;5]	-0,44% [*]	-2,10% ^{***}	-1,66% ^{***}
RAMC [0; 10]	0,07%	-0,65% ^{**}	-0,72% ^{**}

*** $p \leq 0,01$; ** $p \leq 0,05$; * $p \leq 0,1$ (test unidirectionnel lorsque le signe est prévu)

Le tableau 2 présente les tests standards paramétriques sur le RAM et RAMC permettant de vérifier si les rendements anormaux observés autour de la date d'opération (Partie A) et de la date de dépôt (Partie B) sont significativement différents de zéro. Les tests sont effectués sur le RAM au jour zéro, le RAM de certains jours entourant le jour zéro et le RAMC pour certaines sous-périodes entourant la date de l'événement. La première colonne rapporte les jours de bourse relativement à la date d'événement (date d'opération et de dépôt). Les deuxième et troisième colonnes rapportent le RAM et le RAMC pour les périodes identifiées à la première colonne. Enfin, la quatrième colonne indique la différence entre le rendement anormal obtenu lors de l'opération de vente et celui obtenu lors de l'opération d'achat.

La réaction du marché suite aux transactions des administrateurs

Dans la partie B du tableau 2, nous remarquons un RAM négatif et significatif au jour du dépôt d'une opération d'achat et pour le jour précédant, soit les jours [0] et [-1]. Les tests montrent aussi un RAM positif et significatif pour les deux jours suivants la date de dépôt, soient les jours [+1] et [+2]. Ainsi, le marché boursier canadien réagit positivement aux annonces d'achat des administrateurs, mais seulement au jour +1 et au jour +2 avec un RAM significatif de 0,33% et 0,30% respectivement. Les résultats confirment ainsi notre hypothèse de recherche H3a pour les jours +1 et +2, mais il est difficile d'expliquer l'absence de réaction au jour zéro mis à part le faible niveau des transactions d'achat pendant la période de l'étude et le fait que le marché peut difficilement interpréter les opérations d'achat dans un marché baissier et en pleine crise financière. Par ailleurs, conformément à l'hypothèse H3b, les tests contenus dans le tableau 2

indiquent un RAM significatif de -0,60% au jour du dépôt d'une transaction de vente. Ce RAM négatif persiste pour une période d'au moins 10 jours. En effet, le RAMC négatif est significatif pour les sous-périodes de trois jours, cinq jours et dix jours suivant le dépôt d'une opération de vente (RAMC [0;3] RAMC [0;5] RAMC [0;10]). Ainsi, le marché semble réagir négativement aux annonces de vente des dirigeants.

Enfin, il apparaît également que le RAMC à la suite du dépôt des opérations de vente est inférieur au RAMC à la suite du dépôt des opérations d'achat. En effet, nous obtenons des RAMC de 1,27%, 1,66% et de 0,72% significativement inférieurs pour les opérations de vente que pour les opérations d'achat pour les périodes [0;3], [0;5], [0;10] respectivement. Ces résultats indiquent que même pendant la crise financière, le marché perçoit de l'information des opérations boursières effectuées par les administrateurs, car il réagit de façon plus négative à la suite d'opérations de vente qu'à la suite d'opération d'achat [Aktas et al. (2008)]. Ces résultats confirment l'hypothèse H5b. Encore une fois, nous attribuons ces résultats à la possibilité que les opérations d'achat soient plus difficiles à interpréter dans une période de marché baissier et à l'importance monétaire des opérations de vente par rapport aux opérations d'achat qui mènent à des résultats plus concluants pour les opérations de ventes.

Conclusion

Notre recherche analyse le comportement des membres du conseil d'administration de six grandes canadiennes au cours de la récente crise financière dont les conséquences se font encore sentir sur l'économie mondiale. Pour ce faire, nous avons utilisé un échantillon composé de toutes les transactions d'achat et de vente d'actions effectuées par les administrateurs des six grandes banques canadiennes pendant la période 2006-2008 ; soit au total, 266 opérations d'achat et 61 opérations de vente d'actions. De même, pour le besoin de cette étude, nous avons recueilli les données relatives aux rendements du marché et aux rendements journaliers des actions entourant la date de l'opération et la date de dépôt à partir de la base de données TSX-CFMRC. Principalement, cette étude avait pour but d'examiner si les administrateurs ont réalisé des rendements anormaux en menant des transactions sur les actions des banques qu'ils dirigent et d'évaluer la réaction du marché boursier canadien par rapport aux comportements des initiés des banques canadiennes en temps de crise financière.

Nos résultats révèlent que les administrateurs ne semblent pas s'enrichir en achetant des actions de leur banque. Bien plus, nous trouvons un rendement anormal négatif consécutif aux opérations de vente alors que la date des opérations de vente est précédée par un rendement anormal positif cumulé de 1,39% au jour [-2] et de 1,16% au jour [-1]. Il ressort de ce qui précède que les administrateurs des six grandes banques canadiennes ont vendu de façon stratégique leurs titres à la suite d'une hausse du cours boursier et que cette annonce est suivie d'une diminution du cours. Ces résultats nous permettent de conclure que même pendant la crise financière, le marché perçoit les transactions boursières effectuées par les initiés comme un signal. En effet, le marché boursier canadien réagit plus négativement suite aux opérations de vente qu'à la suite des opérations d'achat.

A l'instar de tout travail de recherche, le nôtre comporte un certain nombre de limites qu'il convient de souligner. Concernant la taille de l'échantillon, nous n'avons utilisé que 61 transactions de vente, ce qui est relativement peu par rapport aux opérations d'achat effectuées par les administrateurs des banques canadiennes et pourrait affecter la portée des résultats qui découlent de l'étude. Par conséquent, rien ne prouve que nos résultats soient généralisables. Ainsi, pour pallier ces insuffisances, nous envisageons dans une recherche future, de travailler sur l'ensemble des institutions financières canadiennes (banques et compagnies d'assurance) et d'élargir la base des initiés, en incluant d'autres catégories d'initiés (par exemple, les employés de la haute direction dont le vice-président Finance et les personnes, y compris les personnes morales qui contrôlent plus de 10% des actions votantes de la société), voire même les membres de leur famille pour mieux élucider le sens du comportement transactionnel des initiés durant la crise financière passée.

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ASB Conference, 2010
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UNDERSTANDING REGULATORY RISK TO BROADEN ABORIGINAL FINANCIAL AND ECONOMIC DEVELOPMENT IN ATLANTIC CANADA

This paper explores empirically and conceptually the importance of understanding regulatory risk by Aboriginal economic development officers. It argues that the management of regulatory risk should be an essential component of Aboriginal economic and financial planning. The study proposes a conceptual model to assist Aboriginal officers in managing regulatory risk to promote the formulation of more efficient and effective strategic activities in the management of economic and financial development by Aboriginal staff members.

INTRODUCTION

As indigenous communities continue to grow and face economic challenges, Aboriginal and First Nations organizations may start to direct their economic development staff into broader areas for advice, assurance and technical capability which are potential areas where staff may be beyond their current level of expertise. Consequently, this enhancement of functions creates a number of risks for the community and for the economic/financial officer.

While risk is inherent in any strategic opportunity, the complex nature of Aboriginal communities and entrepreneurial activities creates an even greater opportunity for the emergence of hazards and risks that must be managed.

One inherent risk that needs to be managed is regulation. Economic development opportunities, advice or technical expertise may become obsolete with proposed regulatory changes, failure to manage the impact of current regulations, along with an inability to engage effectively with the government agencies and/or regulators.

Risk is an important concept in financial economics. The writings of Knight (1921) started the management literature but inquiries into the nature of risk are extremely old. The modern conception of risk is rooted in the Hindu-Arabic numbering system which emerged over eight hundred years ago but the serious study of risk began in the Renaissance in 1654 with the work of Pascal (Berstein 1996). The concept of risk within society has also been increasing analyzed, reflecting an increasing societal concern about risk and its management. While there has been

some investigation of management risks within Aboriginal organizations (cf. Cooper and Ulnooweg 2009), there is little understanding of risk within an Aboriginal context.

Regulatory risk is a growing issue that will need to be managed. Regulatory risk is not unique to Aboriginal or First Nations organization. It has ramifications across industries and non-native economic development opportunities. PricewaterhouseCoopers' (2003) defines regulatory risk as:

...the risk of material loss, reputational damage or liability arising from failure to comply with the requirements of the regulators or related codes of best practice that oversee regulated business in whatever areas the organization operates.

Regulatory risk needs to become engrained into the planning to identify, analyze, and control the risks communities face, as well as shape the approach to Aboriginal economic development.

The paper explores both empirically and conceptually the importance of regulatory risk for Aboriginal communities. Data for this paper are taken from a comprehensive Market Demand Study conducted by Ulnooweg Development Group in Atlantic Canada to determine the viability of establishing an Aboriginal controlled and owned financial institution. Economic development staffs in 37 Aboriginal communities were surveyed for this study. Individual interviews were also conducted with Aboriginal economic development officers. Responses were analyzed as to the awareness of regulatory and other risks as part of economic development activities.

The paper argues that the management of regulatory risk should be an essential part of Aboriginal economic development. Identifying, analyzing and managing regulatory risk may be seen as critical not only for communities but also for the ongoing success of economic development staff. Regulation, both current and impending, is one of the essential 'bottom-line' issues that economic development staff must manage in planning and strategy development. The paper proposes a conceptual model to assist Aboriginal staff in managing regulatory risk as part of community and economic development.

BACKGROUND

Aboriginal communities are highly regulated. Funding is provided by federal, provincial governments and other agencies. Most of this financing of programs is tied into various forms of regulatory reporting. Aboriginal communities have many obligations and responsibilities in terms of accounting, controls and planning in order to obtain funding from government agencies.

Regulations can change and, moreover, do so quite rapidly. In Atlantic Canada, for example, the Marshall judicial decision of 2001 had a highly significant impact on fisheries related economic development, almost overnight (Wicken 2002).

Indigenous peoples have had record of resilience in the face of great adversity but they still suffered from prejudice and marginalization. Globally, powerful forces continued to take land

from Indigenous peoples, denigrate their cultures and directly attack their lives. According to the United Nations, such acts violated every principle enshrined in the Declaration and offended the conscience of humanity (United Nations Economic and Social Council 2009 HR/4980). It also poses a number of challenges and risks for Aboriginal communities – not only financial but specifically operational as to how to protect their land and ensure their continued culture.

As well, the United Nations also contends that the dominant models of development have compromised indigenous peoples in every aspect of their daily lives, including through the imposition of large infrastructure projects on their lands without their consent. This has generated poverty and severe inequality, massive environmental devastation and human rights violations. Development normally ignores Indigenous peoples' own governance, economic, social, education, cultural, spiritual and knowledge systems and the natural resources (United Nations Economic and Social Council 2010 E/C.19/2010/1. P.4).

Most Indigenous community development is perceived to have accrued from resource development. However, as outlined by O'Fairchellaigh (2008), Indigenous peoples have historically gained little from large-scale resource development on their traditional lands. This is consistent with the findings of the Senate Committee on Indigenous Peoples in Canada (Senate Committee 2007) as well as Indian and Northern Affairs Canada (2008). Indigenous peoples and communities have suffered from the negative consequences of business - specifically natural resource development projects - on their culture, economies, and societies. In some cases, this has resulted in opposition to development entirely and in many others through seeking a fundamental change in the distribution of benefits and costs.

Within this context, Aboriginal entrepreneurs and businesses also have to deal with the same regulatory scrutiny as other non-native organizations. The complexity of working in an Aboriginal context and having to manage the intricacies that arise from dealing with various funding sources makes the challenges Aboriginal economic development officers experience unique from a regulatory standpoint.

For an Aboriginal development officer, the failure to address regulation may create a significant risk to community development. For a working definition in this paper, risk is defined from a strategic sense namely "Risk can be seen as the probability and consequences of a failure of strategy" (Johnson et al. 2006 p. 369) wherein strategy is focused on long-term planning. Risk is inherent for Aboriginal developmental activities as proposed initiatives may quickly become obsolete or incorrect advice may be given. Moreover, the context of Indigenous economic development where there have been substantial challenges in the past make it a difficult area to manage.

It is also an important area to address. For example, income streams from mining create the potential for Aboriginal groups to establish capital funds that will generate income into the future and indeed long after mining has ceased. For instance, as outlined by (O'Faircheallaigh 2008 76) the Aboriginal signatories to an Australian mining agreement decided to invest in excess of 50% of their revenues in a long-term investment fund. Income is reinvested for 20 years, after which

the capital case is preserved and interest is available to fund current spending. The capital fund already sits at more than A\$30 million and by 2021 it will have the capacity to generate ongoing and substantial income.

Regulation both drives and impedes a number of economic and social initiatives within Aboriginal business. This situation is manifested in funding that emerges from governmental activities or alternatively changes in government decisions that have a significant impact on activities, such as fishing or forestry. The management of this regulatory environment, i.e. what changes may be occurring, what has already occurred, creates risks that need to be managed. Otherwise, damage may occur to the relationship the development officer has with the community and/or entrepreneur. Moreover, failure to manage regulatory risk may cause significant damage for future development activities and lessen the impact that strategic economic development will have on the community.

It is also important to recognize that the management of risk also creates upside potential. Specifically, this upside materializes through the ability to identify new opportunities and solutions for communities, as well as entrepreneurs. If upside risk can be managed, then the relationship between the Aboriginal economic development officer and the community, as well as the entrepreneur, can be further enhanced. More value would then be produced through the development function. The emergence and growth Aboriginal businesses and economic development opportunities should, therefore, create many instances of upside potential.

REGULATION AND THEORY

It is critical to recognize that regulation means different things for different organizations. It usually takes on a normative view, either good or bad, as well as a means/end perspective, either excessive or effective. When referring to the regulation of organizations, the usual starting point is government regulation. However, the spectrum of regulation can be quite wide from corporate self-discipline to quasi-government regulation (Sexty 2007; Qu 2007).

Government regulation is criticized for being oppressive, costly, rigid, weakly enforced and amenable to capture by those it is regulating (Boddewyn 1985). It is this description of regulation that would seem to be the prevailing attitude. This explains, perhaps, why most organizations, both Aboriginal and non-Aboriginal - seek to avoid or criticize regulation rather than embracing the opportunities for new markets, process improvement or relationships that may emerge due to regulatory change.

As outlined by Buckingham and Dana (2005), regulatory theory has emerged from the conflict on modernization discussed by Anderson (2002) and Anderson et al. (2005). Regulation theory emphasizes the importance of economic institutions in development, with capital and its accumulation being influenced greatly by government and non-governmental institutions (Dana 2005). There is an agreement from a theoretical perspective that economic development must include a number of factors, such as human resource development and accumulation of capital (Girlli and Salvatore 1994; Dana 2005). However, there is little research on the risks facing

planning and processes especially when considering the Aboriginal context of economic development.

Contemporary economic development theories stress the importance of social development as well as traditional financial measures, such as job creation and financial gain. Most of the economic development strategies for Aboriginal people are centered on the issue of addressing land rights of indigenous people (Dana 2005). However, this excludes a wide range of activities that Aboriginal communities might engage in from an economic development perspective. Moreover, it excludes the vast numbers of Aboriginal or indigenous people who are 'landless' or do not have the opportunity to avail of financial settlements granted from land rights. The regulatory risk that emerges from focusing on land rights as a primary means of economic development is significant and need to be managed in planning and strategy.

MARKET DEMAND STUDY FOR AN ABORIGINAL-OWNED AND CONTROLLED FINANCIAL INSTITUTION

The Market Demand Study (MDS) conducted by Ulnooweg Development Group in 2007 provides the data set for analyzing the risks facing Aboriginal economic development officers. The MDS was commissioned by the Atlantic Canadian First Nations through Ulnooweg Development Group (UDG). Although the study was primarily focused on the needs and opportunities of the Atlantic Canadian First Nations, it may be seen as generalizable to North American, as well as other international Indigenous people's groups.

Particular interest in the MDS was concentrated on what was occurring in the rest of North America as well as internationally in Aboriginal-owned and controlled financial institutions. The MDS recognized the need to identify various risks, including regulatory. This facet was one of the main drivers to the project. Moreover, the MDS provides the means for assessing the opportunities, as well as hazards, for Aboriginal controlled financial services organizations in Atlantic Canada and perhaps within a wider context throughout the rest of the world. Aboriginal communities that need capital to further promote and grow their economic development activities should have a symbiotic relationship with financial institutions. Obviously, this creates a degree of regulatory risk as access to capital, provided by government institutions, may change rapidly to the detriment of Aboriginal development activities.

The MDS addressed the development of unregulated and regulated financial institution options in response to identified and anticipated demand for Atlantic Canadian First Nations. The identified and anticipated demand was primarily related to economic development, as well as housing activities. Before the study, it was generally acknowledged that mainstream financial institutions providing the bulk of the First Nation debt financing fell within the risk tolerance of federally regulated financial institutions. Each community knew their respective borrowing levels and which institutions held that debt but the information was never been compiled or analyzed on a collective basis. Moreover, communities had never identified their prospective capital needs for economic and housing development on a collective basis.

Ulnooweg's Board of Directors, comprised of Atlantic Chiefs, tasked UDG with the responsibility of undertaking a study to document, analyze and quantify the demand for capital. A variety of methodologies were used to create the MDS including surveys, a compilation of financial statements from First Nations communities, as well as key informant interviews including Aboriginal economic development officers.

METHODOLOGY

While the focus of this study was on the role of regulatory risk in Aboriginal economic development for Indigenous communities and entrepreneurs, the data came from a much wider survey that was done as a piece of participatory research during 2007-2010 with Ulnooweg Development Group, an Aboriginal owned financial institution. The focus of this study was on the First Nations within Atlantic Canada.

There are thirty three First Nation communities in Atlantic Canada distributed throughout four provinces. Each First Nation is autonomous and governed by an elected Chief and Council. Although the elected Chiefs and Band Councils of individual First Nation Bands are the basis of the political structure in Atlantic Canada, there are a number of entities which arise from different configurations of these Bands.

All of the First Nation communities in Atlantic Canada belong to the Atlantic Policy Congress of First Nations Chiefs (APC). The APC Secretariat is a Policy Research and Advocacy Secretariat for 33 Mi'kmaq and Maliseet and Passamaquoddy Chiefs, Nations, and Communities in Eastern Canada. The First Nations in Atlantic Canada are an interesting group to study because their structure and peoples are indicative of the wider Aboriginal community in Canada. In Atlantic Canada, there are communities which have self-governments agreements, land claim settlements, tribal councils, landless bands etc. Business enterprises range from those owned by governments with millions in assets to small entrepreneur operations with one employee. Communities exist within urban boundaries, in proximity to large urban centres and in remote coastal and inland communities. Consumers belong to many different Aboriginal groups and have widely varying forms of employment, education and housing.

The wider participatory research project came from an idea in 2004 of establishing an Aboriginal Financial Services Holding Company that was discussed by the partner in the participatory research, Ulnooweg Development Group (UDG) as a means to explore potential Aboriginal involvement in the financial services sector. Ulnooweg has been providing loans and business services to Aboriginal entrepreneurs in Atlantic Canada since 1986. With representatives in New Brunswick, Newfoundland & Labrador and Nova Scotia, its stated mission is to offer convenient, personalized service to its clients to help them succeed. Ulnooweg's lending services bring financial support for First Nations businesses who may not be eligible for loans through other lending institutions. It aims to fill the needs that Aboriginal business owners have in accessing business loans and services in Atlantic Canada (Ulnooweg 2008).

In 2006, a Market Demand Study (MDS) Proposal to study the feasibility of an Aboriginal financial services institution in Atlantic Canada was prepared by UDG. In December 2006, the Minister of Indian and Northern Affairs Canada announced funding for the Study. As outlined in the MDS document, the studies' objectives were as follows:

- Conduct an assessment of the financial services needs of the Aboriginal community in Atlantic Canada
- Examine the experience of other Aboriginal groups and institutions who have been involved in similar undertakings;
- Analyze the requirements of capital markets and regulatory institutions; and
- Conduct an assessment of potential ownership and operational models of various financial institutions.

One of the authors of this paper then became involved as researcher in the project. He worked with Ulnooweg to ensure that conclusions on the demand for financial services were triangulated – that at least three sources of information were used to document demand. Moreover, he took a participatory research approach (cf. Reason and Rowan, 1981; Reason and Bradbury 2001) where they worked to understand the context that Indigenous communities and businesses are facing in respect to economic and business development.

As part of a participatory approach to research, considerable time and effort were invested in the development of the Community Information Package (CIP) which was sent to the individual First Nations to solicit their direct participation in the project. It was emphasized that the individual First Nations would need to consent to provide the information which was consistent with the participatory approach of doing research with, rather than on people (Reason and Rowan 1981).

For the purposes of the study, a number of other data points were gathered. Data included:

- First Nation Financial Statements
- Key Informant Interviews with Chiefs
- Key Informant Interviews with General Managers
- Key Informant Interviews with Collateral Agencies
- Economic Development Officer Survey

As part of the MDS, a survey was developed and distributed to 31 Economic Development Officers in the Atlantic Canadian region. Eleven surveys were returned or approximately 30%. Four surveys were completed by individuals from the same community. Three of these surveys were excluded from the data set.

The MDS analyzed the results of surveys completed by Economic Development Officers in eight of the 33 communities in Atlantic Canada. These surveys identified major business projects with a collective potential value of \$35 million ranging from \$50,000 to \$14 million dollars.

One of the questions asked in the survey had relevance for the management of regulatory risk.

“Are you aware of any business projects in your community which may require funding over the next two years?” Survey respondents were asked to fill in a table with their responses. (See Table 1)

In this instance, risks were identified as not qualifying for funding opportunities around potential changes in regulation or government funding. Collectively, the eight communities Economic Development Officers responding to the survey identified Band Projects with a projected total cost of \$35,580,000. They also identified projects associated with entrepreneurs with a projected total cost of \$1,385,000.

Table 1: Band Projects, Project Costs by Sector as of 2007 – Source Market Demand Study (2008)

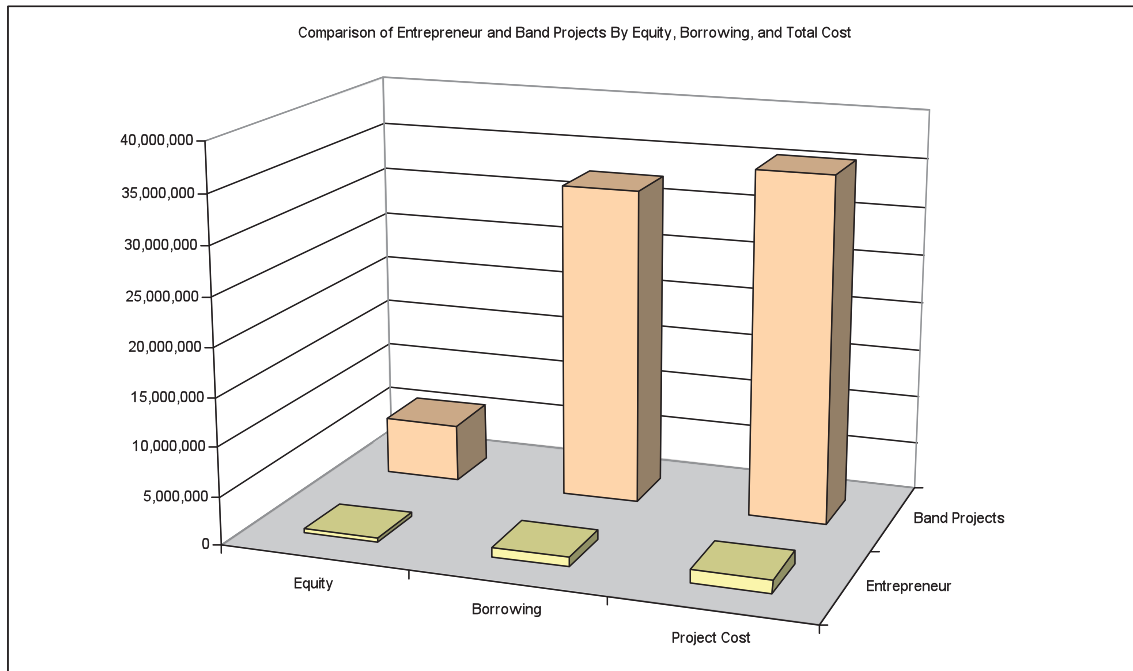
Band Projects		
	Band Projects	Entrepreneur Projects
Sector	Project Costs	Project Costs
Tourism	10,350,000	600,000
Retail	1,555,000	25,000
Service	2,100,000	310,000
Forestry	16,075,000	0
Energy	5,000,000	0
Multi Sector	3,500,000	250,000
Transportation	0	200,000
Total	\$38,580,000	1,385,000

We were able to find from the survey the level of borrowing needed to ensure that these projects were able to commence. The projected equity level was quite low, which may indicate that these projects were even higher risk. The results are as follows:

Table 2

Comparison of Band and Entrepreneur Projects - Source Market Demand Study 2008

	Project Cost	Equity	Borrowing
Band Projects	35,580,000	6,007,500	32,567,500
Entrepreneur	1,385,000	367,450	1,017,050



Some of the sectors where projects were identified, such as forestry and energy, are highly regulated and pose more risk to a community from a regulatory perspective (Ainger 2006). Others, such as retail, have less regulatory impact but, at the same time, more operational or market risk. The survey results indicated that the First Nations of Atlantic Canada may also have opportunities within seafood processing (primary and secondary), mineral, and energy sectors (Oil and Gas, Hydro Electricity, Wind Generated Electricity). All these, once again, pose specific regulatory risks that would need to be considered in economic development planning and strategy.

Although this data is subjective it does tell us that the on-reserve business community in Atlantic is diverse in activity and. It also shows a wide range in the scope of business activity and the level of investment that may be required. Both of these elements create substantial risks for Aboriginal communities as well as financial institutions.

RISK AND ABORIGINAL COMMUNITIES

The MDS demonstrated that one of the potential upside risks for economic development is the growth in Aboriginal communities. The 2001 census showed that the North American Indian population is relatively young. Its median age in 2001 was 23.5 years compared with 37.7 in the non-Aboriginal population. This means that 50% of the North American Indian population in 2001 was less than 23.5 years old. More than one-third of this group is aged 14 and under.

One of the results of the growth in Aboriginal communities and businesses has been the intensification of risk. Aboriginal communities now know that risk and its management are integral to their economic development strategy. What needs to be determined is the probability of how risk will change the economic development activity and the degree of the impact it will have on subsequent planning, processes and strategy.

Risks can be dichotomized as being either ‘hard’ or ‘soft’. Financial risks, such as credit and market are usually seen as ‘hard’ in that they can be calculated and quantified. On the other hand, operational risks, such as risks to an organization’s reputation, its strategy and its human resources capital are considered ‘soft’ in that they are more difficult to measure and quantify and, therefore, ultimately control. Regulatory risk is one of these ‘soft’ risks that most organizations find difficult to identify, manage and control. The economic development risks facing the majority of organizations are essentially ‘soft’ risks. This makes the management of regulatory risk for economic development officers somewhat more difficult to manage and measure on behalf of their communities.

The first step in analyzing the threats and opportunities facing a First Nations’ community is to identify what are the risks it would be facing specifically around economic development strategy. Traditional management literature points to strategic risk emphasizing the importance of planning, decision making and implementation within any organization. The literature manifests that risks may be particularly high for organizations with significant long-term programs of innovation or where high levels of uncertainty exist about key issues in the environment (Cooper and Ulnooweg 2009). The following diagram outlines the levels of risks usually seen within an organization:

Diagram 1 - Common Risks Seen in Organizations – Source authors



Management of risk is particularly important in the context of economic development. Specifically, there is evidence that there has been a progressive move to incorporate formal risk assessment in regular business plans as well as the investment appraisal of major projects (Sylwotzky 2007). However, there is a paucity of evidence that regulation is considered to be a management risk for these projects.

Increasing societal concern about risk, both Aboriginal and non-native, is manifest in the findings of the MDS as well as the subsequent follow-up interviews with Aboriginal economic development officers. Regulation and specifically changes to regulation were of particular interest to Aboriginal economic development officers which creates the need for better management practices and tools.

RISK AND ITS IMPLICATIONS FOR ABORIGINAL DEVELOPMENT OFFICERS

One of the principal aims of an Aboriginal economic development officer should be to add value to communities by using a variety of techniques, concepts and expertise. Value may be measured in a number of ways, whether through job creation, increasing funding for community development activities or an overall improved climate for economic development. By extension, it may be argued that the nature of economic development is to create value for communities both now and in the future while recognizing the impact of this ‘value creation’ on future generations.

The result is that an Aboriginal economic development officer should be directing communities into areas that provide the most value creation. This means that there needs to be a comprehension of the risks to take and those to avoid, which necessitates the ability to judge and accept risks (Chapman 2007). Since the Aboriginal economic development officer provides the community some sort of expertise or management services, the ability to use judgment in the acceptance of risks is critical for the value delivered to the community.

For an Aboriginal economic development officer, it is important to recognize that risk is inescapable in any business activity. Drucker (1977) relates that the ability and willingness to take risks is the essence of economic activity. Nearly all operational tasks and processes are now viewed through the prism of risk (Chapman 2006; Hunt 2001). Moreover, it is not really possible to “create an organization that doesn’t take risks” (Boulton et al. 2000). The end result of any successful economic development activity must be to deliver to the community the capacity to take greater risk. Developing this capacity is the only way to ensure the ongoing development of value for the community. However, to extend this risk-taking capacity, Aboriginal communities and entrepreneurs must fully understand the risks that they are undertaking and that the economic development officer is suggesting.

While in many instances it is futile to try to eliminate risk, and usually only possible to reduce it, it is essential that the regulatory risks taken within the context of an economic development activity are the right ones. Aboriginal communities and entrepreneurs must be able to choose

rationally among risk-taking courses of action, rather than plunge into uncertainty on the basis of a hunch, gut feel or experience no matter how carefully quantified (cf. Chapman 2006).

For the Aboriginal economic development officer, it is important to clarify what is regulatory risk so that it can be communicated to the community. Regulatory risk affects any regulated business or regulated industry in any country – it is not a phenomenon unique to the financial services or the utilities sector where regulators are powerful and omnipresent.

As outlined at the beginning of the paper, regulatory risk can be defined as:

The risk of material loss, reputational damage or liability arising from failure to comply with the requirements of the regulators or related codes of best practice that oversee regulated business in whatever areas the organization operates.

This definition is generic and applies to any organization in any regulated industry. It is important to note that compliance with requirements is still paramount. Regulatory risk, however, seeks to identify the impact of not complying. To further define the concept to make it more relevant to Aboriginal economic development, the following definition would be more relevant:

The risk of material loss, spiritual, cultural or reputational damage or liability arising from failure to comply with the requirements of governments, regulators or related funding agencies that oversee Aboriginal economic development activities in whatever areas the community operates.

This definition encompasses the spiritual and cultural risk that needs to be managed in a First Nation context (cf. Cooper and Ulnooweg 2009) as well as the role of federal government and other agency funders. Aboriginal economic development officers dealing with managing regulatory risks therefore need to ensure that they identify the impact of not complying with regulatory requirements both now and in the future.

ECONOMIC DEVELOPMENT – AN ONGOING PROCESS OF MANAGING RISKS

Ultimately there are risks in every element of an economic development process. For Aboriginal economic development officers engaged in managing the development of their communities, there are a number of specific risks that need to be addressed on an ongoing basis.

There are some obvious process risks for economic development officers (such as expectation management, the management of standards and responsibilities as well as financial risk). For Aboriginal economic development officers, an argument may be made that the most salient risk to be managed is regulatory. This is because regulatory risk has a potential impact throughout the whole of the process. The following model outlines the risks facing an Aboriginal economic development officer. Each risk is analyzed in turn in the following section.

Diagram 2 – Regulatory Risks Facing Aboriginal Economic Development – Source Authors



The first risk that any Aboriginal economic development officer will need to manage is community expectations and wants. One of the main objectives of any economic development process has to be to ensure that the expectations and wants of the communities are met. Otherwise, regardless of the type of economic development process, the community may not accept the findings (if the economic development officer is acting as expert) or actively engage with the economic development activity.

For a development officer, what constitutes an economic development process may be considered quite broad within the Aboriginal context. The community may want the economic development officer to provide a solution that is not consistent with either a) good practice or b) regulation, both now and in the future. Regulation underpins how the Aboriginal economic development officer forms the community's expectations and wants.

If a community or entrepreneur wants or expects an economic development generated solution that is not regulatory-compliant and/or does not recognize the impact of either future or past regulations on the proposed approach, then that is a risk for the Aboriginal economic development officer. The approach may ultimately fail or have to be reduced due to regulatory issues. Further, if the economic development officer does not understand how the proposed solution will be accepted by stakeholders, including regulatory representatives, then that may

also pose a significant risk for both the community and the economic development officer. Funding could be withdrawn or redirected due to a failure to address regulatory concerns.

While managing community and entrepreneur expectations and wants is a major risk for any Aboriginal economic development activity, it is not exclusively driven by regulation. In order to address specific regulatory risks, the Aboriginal economic development officer should focus on the following:

1. Upstream risks – the risks that exist before rules are made - include the risks that the community is unaware of potential regulatory developments and how they will impact the initiative being proposed by the economic development officer. Failure to address an upstream regulatory risk means that there may be an inadequate assessment as to the commercial and regulatory impact of new legislation or regulation that may be imposed on the community. Finally, a community may not succeed in lobbying legislators and regulators effectively which results in an overall failure to plan and implement new economic development regulations. Failure to identify and manage upstream risks leaves the Aboriginal economic development officer as well as the community poorly able to identify, assess, influence and implement effective regulatory change as it pertains to economic and community development.

2. Current Regulation’s Impact – the risk of not addressing or taking opportunities from addressing a current regulation’s impact - is probably the element of risk that is most effectively managed by Aboriginal economic development officers. These include the risks that the economic development officer is unaware of current regulations and how they impact the community’s approach to economic development. Failure to address current regulations impact on economic development and planning means, as in upstream regulatory risk, an inadequate or lack of an assessment as to commercial and regulatory impact of existing legislation centered on economic development.

3. Downstream risks – the risks that exist after rules are made - include the risks that existing rules, as they pertain to economic development, are not being complied with in the organization and cannot be viewed by the economic development officer. Further, downstream risks occur when changes in the community’s scope of economic activities are affected by existing or new types of rules or regulators that have not been identified by the economic development officer or the community. For example, the emergence of alternative energy as an economic development activity may put communities in contact with regulators or government agencies that have not been dealt with in the past. Finally, failure to identify and manage downstream risks leaves the organization poorly able to ensure effective compliance of rules and regulation by the community. It also potentially damages both the economic development officer’s ability to manage growth and development change issues as well as ensure that other risks such as community expectations, upstream risks and current regulations impact are being met.

4. Stakeholder Expectations and Needs - the risk of not developing and managing effective relationships with stakeholders in respect to regulation. While stakeholder relationship management is a significant area of both practitioner and academic interest, it is usually examined at a broad rather than the specific level of regulation. As regulators, governments as

well as other civil society representatives increasingly become interested in economic development issues, the Aboriginal economic development officer's failure to address stakeholder expectations and needs in their solutions creates a risk. For example, joint venture partners or non-native communities may be considered stakeholders who may need to be consulted about changes to economic development activities. This risk can be managed through the development of effective relationships with stakeholders throughout the economic development process. However, failure to address stakeholder expectations results in weakened lobbying impact, the potential for an onerous government regulation process and avoidable enforcement action. An Aboriginal economic development officer who is managing growth needs to understand these risks and ensure they are managed.

As previously outlined, there are risks in every element of an economic development process. However, Aboriginal economic development officers are also expected to propose solutions, provide value and overall assist their communities in addressing their economic development. Although regulatory risk may be present in any economic development process, this does not allow an economic development officer to 'walk away' when their community asks them to go into new or unknown area that may pose significant regulatory risks. For Aboriginal economic development officers engaged within their communities, there is a need to define and implement a formalized approach to managing regulatory risk.

Conclusions and Way Forward

Regulatory risk management is built around fundamental high-level principles that are applicable in any regulated activity including economic development. The key is a consistent overall definition of regulatory risk and generic approaches to identifying and managing specific regulatory risks within the economic development process recognizing the Aboriginal context and challenges of Indigenous communities.

Taking a risk-based approach to regulation can ensure for the Aboriginal economic development officer the ongoing success of a community solution to economic development, the relationship they have with their communities as well as the value of their expertise and skills.

Aboriginal economic development officers will need, both now and in the future, to actively manage the regulatory risks for their communities. For economic development officers, regulation may affect all parts of an economic development process including social, environmental and economic outcomes. The key is to make it an essential and formal part of the economic development planning and strategy.

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COMPARING THE PERFORMANCE OF A MANAGED PORTFOLIO TO THE PERFORMANCE OF A BENCHMARK PORTFOLIO

Decomposing excess return into asset allocation and security selection components is ambiguous when the return is expressed in terms of asset classes. We present two methods for eliminating this ambiguity.

Introduction

The assumption that financial markets are efficient in their processing of information implies that the return from managed portfolios cannot consistently exceed the return from an unmanaged, or 'benchmark' portfolio. Thus, for the sake of investors who pay higher management fees to obtain shares of these managed funds, it has become common practice to evaluate the performance of a portfolio manager by comparing the return from the managed portfolio to the return from a benchmark portfolio of the same risk. The return from a managed portfolio can differ from the benchmark portfolio in two ways: (1) the securities in the managed portfolio can differ from the securities in the benchmark, and (2) the proportion of one asset class in the managed portfolio can differ from the proportion of the same asset class in the benchmark portfolio. As a result, one would suppose that the performance of the portfolio manager can be evaluated in two dimensions: (1) the ability to choose better securities, and (2) the skill to allocate the investment among the different asset classes.

The desire to separate difference in return into these two dimensions is not limited to evaluating fund manager performance. For many years, there have been funds which include non-financial qualities as part of the investment decision. Companies which support undesirable political or social behavior are boycotted, and firms which are socially and environmentally responsible are sought. The question then arises: does limiting the choice of investments in this way result in a lower return or, do the "desirable features" of the companies in the limited set result in a higher return? Here again the difference between the return of these socially responsible funds and their benchmarks can be separated into different dimensions. If, for example, a socially responsible fund has a higher return than its benchmark, we can ask: is this because these funds have picked better set of securities or because they have relatively invested more in high return investment classes?

Thus, whether evaluating the performance of a fund manager, or assessing the merits of socially responsible investing, it is necessary to decompose the difference in the return between the managed and benchmark portfolios into a security selection component and an asset allocation component. The goal of this article is to explore some of the ambiguities of these decomposition attempts.

Most of the literature dealing with performance measurement is involved with testing the persistence of returns over time, and hence the models measure the excess return against a benchmark and introduce variables to separate the impact of the fund manager's decisions from the impact of exogenous economic events. Typically, when a benchmark approach is used, the difference between the portfolio return and the benchmark return is divided into a market timing component and a security picking component. In one of the earliest papers, Treynor and Mazuy (1966), the "Characteristic Line" is estimated by adding a squared term to the usual linear regression model for estimating the fund's beta. They judge timing ability of the funds under study by the sign and the coefficient of the squared term, γ_p . The intercept for this regression line, α_p , is often referred to as a measure of stock picking ability.

A large portion of the papers in this widely researched area, deal with the construction of the benchmark portfolio. Lehman and Modest (1987) compare tests using the single factor CAPM to multi-factor APT models. Grinblatt and Titman (1989) use four different benchmarks in a single factor setting. Ferson and Schadt (1996), Ferson and Warther (1996), Christopherson, Ferson and Glassman (1998) use multifactor benchmarks which are constructed conditioned on publicly available information. Dellva, Demaskey, and Smith (2001) use three different benchmarks. Gil-Bazo, Ruis-Verdú and Santos (2008) also use a multifactor benchmark in testing for superior performance of socially responsible investments. Christopherson, Ferson and Glassman (1998) also allow for α_p and γ_p to vary with time.

Most, but not all, of the papers cited attempt to distinguish market timing ability from stock picking ability. The possibility that the boundary between the market timing and stock picking components of return is not well defined, has received very little attention. The first reference to this problem seems to be in Brinson, Hood and Beehower (1986). These researchers begin by proposing a framework for decomposing total portfolio returns. Alternatively, this can be interpreted as the excess return over a benchmark portfolio consisting of cash. They acknowledge that their approach is widely used and "is currently being used to attribute performance contributions in actual portfolios." Specifically, they identify $\sum (w_{Pi} - w_{Bi}) r_{Bi}$ as a timing component, $\sum w_{Bi} (r_{Bi} - r_{Pi})$ as a security selection component, and $\sum (w_{Pi} r_{Bi} - w_B r_{Pi})$ as "other," where w_{Bi} is the weight of the i^{th} asset class and r_{Bi} is its return for a passive portfolio, and w_{Pi} and r_{Pi} are similarly defined for the active portfolio. (The notation used here has been changed to match the notation used below.) They then perform analyses of variance with these components. However, they write that 'because a complete history of the contents of the "other" component is not available for many plans, we elected to exclude this segment from most of the analysis.'

Xiong, Ibbotson, Idzorek, and Chen (2010) perform a similar analysis, but with a benchmark of the market portfolio. They perform three regressions in an attempt to decompose total return into asset allocation and "active management" components. They regress the excess of the fund return

over market return (1) in a time series and (2) cross-sectionally, and (3) regress total returns on the excess of “policy return” over market return and on the excess of fund return over market return. Computing the R^2 for each of these regressions, they conclude that, on average, about 75% of the return is due to market movement, and the remaining 25% is split about equally between asset allocation and active management. They also report an “interaction effect” which they describe as “a balancing effect and makes the three return components’ R^2 s add up to 100%.” This is the same as the “other” component in the Brinson, Hood and Beehower paper.

Ibbotson (2010) is a summary of several articles, including the two just cited. It makes the observation that the R^2 numbers do not measure the contribution of the return *level* from each component, but explain on the variation (the variance in fact) of returns.

In a practitioner paper, Rennie and Cowhey (1990) observe that the benchmark should be constructed from the same subset of all securities as is used by the portfolio manager. Unlike most of the articles dealing with performance measurement, Rennie and Cowhey do not test for consistent superior performance, but, in a case setting, decompose the actual return less benchmark return for three managers into market timing, industry exposure, sector emphasis, security selection and unreconciled return components. They do not give details of how this decomposition is accomplished, but their unreconciled return component is in the same as the “other” component and the “interaction effect” cited earlier. It is the question of how to deal with this “other” component which is the focus of our article.

To show how this problem arises, consider first, the following numerical example in which we compare the performance of a managed portfolio to the performance of a benchmark portfolio. Both the managed portfolio (P) and the benchmark portfolio (B) consist of only a bond portfolio and a stock portfolio. However, structures of these stock and bond portfolios are different, and each portfolio has allocated different percentages of the investment to each asset class, shown below:

Asset Class	The Portfolio		The Benchmark	
	Weight	Return	Weight	Return
Bond Portfolio	10%	6%	50%	5%
Stock Portfolio	90%	16%	50%	15%
Total Return	15%		10%	

We define the excess return, r_E , as the amount of return by which the managed portfolio has outperformed the benchmark portfolio:

$$r_E = \sum_{i=1}^N w_{Pi} r_{Pi} - \sum_{i=1}^N w_{Bi} r_{Bi} = 15\% - 10\% = 5\% , \quad (1)$$

where the w 's are the weights and the r 's are the returns. Here, we have generalized from two to N asset classes. We now ask which part of this excess return is due to the difference between the managed and benchmark asset allocation between bond and stock classes, and which part is due

to selecting securities different from those of the benchmark in each of the asset classes. We can decompose this 5% excess return into an asset allocation component and a security selection component in at least two ways.

First, suppose that the managed portfolio contains the same securities, but that the allocation of the investment in each asset class uses the benchmark weights. Then the portfolio return would have been $0.50(6\%) + 0.50(16\%) = 11\%$. Since the only difference between this hypothetical portfolio and the actual managed portfolio is the asset allocation, one will attribute the difference of $15\% - 11\% = 4\%$ to the asset allocation.

The remaining 1% of the excess return is attributed to selection of assets, as follows. Suppose that the benchmark had the same bond and stock portfolios as the managed portfolio. Then, the benchmark portfolio's return would have been $0.50(6\%) + 0.50(16\%) = 11\%$. Since the only difference between this hypothetical benchmark and the actual benchmark is the return on the assets within the portfolios, one will attribute the difference in performance, $11\% - 10\% = 1\%$ is to the security selection.

In the notation of Equation (1), $\sum r_{Pi} (w_{Pi} - w_{Bi}) = 4\%$ and $\sum w_{Bi} (r_{Pi} - r_{Bi}) = 1\%$, so that we have decomposed r_E as

$$r_E = \sum_{i=1}^N w_{Bi} (r_{Pi} - r_{Bi}) + \sum_{i=1}^N r_{Pi} (w_{Pi} - w_{Bi}) = 1\% + 4\% = 5\% \quad (2)$$

where the number N of asset classes for this example is 2. This is of course a typical textbook solution.¹ The (unexplained) premise for this solution is that we can add and subtract the term $\sum_{i=1}^N w_{Bi} r_{Pi}$ to and from Equation (1), without changing the magnitude of r_E , to be able to measure r_E in terms of Equation (2).

Equation (2) shows that we have measured the security selection component using the weights, w_{Bi} , of the benchmark portfolio, and have measured the asset allocation component using the returns, r_{Pi} , of the managed portfolio assets.

We can also decompose the excess return by using the returns of the benchmark portfolio assets and the managed portfolio weights as follows. Suppose the benchmark were to select the same securities in each asset class as it has now but were to allocate the investment in the bond and stock portfolio using the same weights as the managed portfolio. Then the return from the benchmark portfolio would have been $0.10(5\%) + 0.90(15\%) = 14\%$. One would then attribute the difference, $14\% - 10\% = 4\%$, to the asset allocation.

¹ See Reilly, F. K. and C. Brown, *Investment Analysis and Portfolio Management* 8th edition, Thomson/South-Western, 2006.

We again attribute the remaining 1% to security selection using the following argument. Let the managed portfolio keep the 10%/90% allocation to bonds and stocks but pick the bond and stock portfolios of the benchmark. Then the managed portfolio would have earned $0.10(5\%) + 0.90(15\%) = 14\%$. The difference in performance, $15\% - 14\% = 1\%$ would then be attributed to the security selection.

In the notation of Equation (1), this decomposition has $\sum r_{Bi} (w_{Pi} - w_{Bi}) = 4\%$ and $\sum w_{Pi} (r_{Pi} - r_{Bi}) = 1\%$, so that we have decomposed r_E as

$$r_E = \sum_{i=1}^N r_{Bi} (w_{Pi} - w_{Bi}) + \sum_{i=1}^N w_{Pi} (r_{Pi} - r_{Bi}) \quad (3)$$

Again, the premise for this solution is that we can add and subtract the term $\sum_{i=1}^N w_{Pi} r_{Bi}$ to and from Equation (1) and rewrite r_E in terms of Equation (3).

This example suggests that the decomposition of excess return into a 4% asset allocation component and a 1% security selection component is unique. Let us test this suggestion by altering our previous example to the case where the benchmark had different bond and stock portfolios with lower returns as shown in the table below:

Asset Class	The Portfolio		The Benchmark	
	Weight	Return	Weight	Return
Bond Portfolio	10%	6%	50%	4%
Stock Portfolio	90%	16%	50%	12%
Total Return	15%		8%	

To decompose the 7% excess return into asset allocation and security selection components, we assume, as we did earlier, that the managed portfolio contains the same securities, but applied the benchmark weights to allocate investment funds between bond and stock portfolio. Then the portfolio return would have been $0.50(6\%) + 0.50(16\%) = 11\%$. Since the only difference between this hypothetical portfolio and the actual managed portfolio is the asset allocation, one could attribute the difference of $15\% - 11\% = 4\%$ to the asset allocation, as before. In the same way as in the first example, we can allocate 3% of the performance difference to security selection.

Now let us try, as before, to decompose the excess return by assuming that the benchmark were to select the same securities in each asset class as it has now but were to allocate the investment in these two asset classes using the same weights as the managed portfolio. Then the return from the benchmark portfolio would have been $0.10(4\%) + 0.90(12\%) = 11.2\%$. Now we would attribute the difference, $11.2\% - 8\% = 3.2\%$, to the asset allocation. We again attribute the remaining 3.8% to security selection in the same way as in the first example.

So, this example clearly shows that the decomposition of excess return into asset allocation and security selection components is not unique as suggested by our first example.

Comparison of Equation (2) to Equation (3) shows why the uniqueness conclusion made by our first example is not valid. Using Equation (2) we obtain that

$$\text{the asset allocation component} = \sum_{i=1}^N r_{P_i} (w_{P_i} - w_{B_i}) \quad (4)$$

$$\text{and the security selection component} = \sum_{i=1}^N w_{B_i} (r_{P_i} - r_{B_i})$$

while using Equation (3) we obtain that

$$\text{the asset allocation component} = \sum_{i=1}^N r_{B_i} (w_{P_i} - w_{B_i}) \quad (5)$$

$$\text{and the security selection component} = \sum_{i=1}^N w_{P_i} (r_{P_i} - r_{B_i})$$

The explanation for the misleading result which is obtained from our first example lies in the figures we chose for the example. Let the index “1” stand for the bond and the index “2” stand for the stock. Then for the example, we have

$$\begin{aligned} r_{P_1} &= .06 & r_{B_1} &= .05 \\ r_{P_2} &= .16 & r_{B_2} &= .15 \end{aligned} \quad (6)$$

Thus $r_{P_1} - r_{B_1} = r_{P_2} - r_{B_2}$, and, since the w 's sum to one,

$$\begin{aligned} \sum_{i=1}^N w_{B_i} (r_{P_i} - r_{B_i}) &= (r_{P_1} - r_{B_1}) \sum_{i=1}^N w_{B_i} = r_{P_1} - r_{B_1} = r_{P_1} - r_{B_2} \\ \text{and } \sum_{i=1}^N w_{P_i} (r_{P_i} - r_{B_i}) &= (r_{P_1} - r_{B_1}) \sum_{i=1}^N w_{P_i} = r_{P_1} - r_{B_1} = r_{P_1} - r_{B_2} . \end{aligned} \quad (7)$$

Thus, *for the example*, the security selection component will be the same whether it is measured using Equation (2) or Equation (3). Since each of Equations (2) and (3) hold, it will also be true, *for the example*, that the asset allocation component will be independent of the return measure. Thus the lack of ambiguity suggested by our first example is an exception, rather than the rule, and the decomposition of excess return into asset allocation components and security selections is not unique.

The Problem

The approach taken above by using either Equations (4) or (5) treats bond and stock portfolios in managed and benchmark funds as *single* securities. In reality, these are portfolios with different compositions for the two funds, and even if they held exactly the same securities, which would be an exception, the weights are different. Thus the portion of differential return designated as security selection by either equation (4) or (5) could have some asset allocation component in it. Likewise, the portion designated as asset allocation could have some security selection portion in it. See Figure 1, in which, for one asset class i , we have $w_{P_i} r_{P_i}$ larger than $w_{B_i} r_{B_i}$

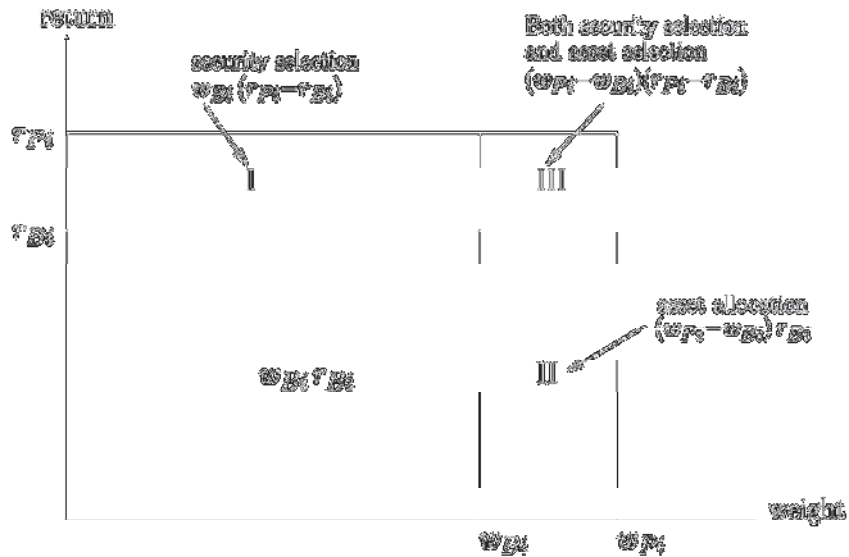


Figure 1.

The difference between $w_{Pi}r_{Pi}$ and $w_{Bi}r_{Bi}$ can be decomposed into three parts. Part I, given by $w_{Bi}(r_{Pi}-r_{Bi})$, measures the contribution from differences in returns of securities within the asset class, and part II, given by $(w_{Pi}-w_{Bi})r_{Bi}$ measures the contribution from differences in weightings allocated to this asset class. Part III, $(w_{Pi}-w_{Bi})(r_{Pi}-r_{Bi})$, measures contributions from differences in both weights and returns and hence contains both elements of allocation and selection². The decomposition of r_E in Equation (4) attaches all of part III to part II (asset allocation), while that in Equation (5) attaches all of part III to part I (security selection).

It is this third part that cannot be unambiguously classified by outsiders who lack detailed information about the funds. To elaborate further, in decomposing the excess return into allocation and selection components, we must somehow assign Part III of the excess return to asset allocation and security selection. Without more information about the securities within Part III, it is clear therefore that the decomposition of return into asset allocation and security selection will be arbitrary. This article investigates some approaches to provide a meaningful decomposition of excess return in the face of this ambiguity. To serve this purpose, we take two different approaches:

² This phenomenon is implicitly referred to by Bodie, Kane, and Marcus (2009) in passing but no detailed analysis or solution is offered.

First Approach

Instead of treating a fund as a group of asset classes or portfolios, we can treat it as a set of a finite number, N , of individual securities. Let w_{Pi} be the percentage of the managed portfolio invested in security i and let w_{Bi} be defined similarly for the benchmark. Let r_i be the return from security i . The excess of the return of the managed portfolio over the return of the benchmark portfolio is

$$r_E = \sum_{i=1}^N w_{Pi} r_i - \sum_{i=1}^N w_{Bi} r_i. \quad (8)$$

This differs from (1) in that in (8), if the i^{th} security is not part of the managed portfolio, then $w_{Pi} = 0$, and if the j^{th} security is not part of the benchmark portfolio, then $w_{Bj} = 0$. Thus (8) does not necessarily imply that the managed and the benchmark funds consist of the same securities. From (8), the excess return can be written

$$r_E = \sum_{i=1}^N (w_{Pi} - w_{Bi}) r_i. \quad (9)$$

The sum in (8) or (9) can be separated into three parts: (1) terms in which both w_{Pi} and w_{Bi} are non-zero, (2) terms in which w_{Pi} is non-zero and w_{Bi} is zero, and (3) terms in which w_{Pi} is zero and w_{Bi} is non-zero. Let $N_P \leq N$ be the number of securities in the managed portfolio, let $N_B \leq N$ be the number of securities in the benchmark portfolio, and $N_{\text{BOTH}} \leq N$ be the number of securities in both the managed portfolio and the benchmark portfolio. For convenience, we can set N so that

$$N = N_{\text{BOTH}} + (N_P - N_{\text{BOTH}}) + (N_B - N_{\text{BOTH}}) = N_P + N_B - N_{\text{BOTH}}. \quad (10)$$

Reindex the N securities so that the first N_{BOTH} securities are in both portfolios, the next $N_P - N_{\text{BOTH}}$ are just in the managed portfolio, and the remaining $N_B - N_{\text{BOTH}}$ are just in the benchmark portfolio. Then we can write the excess return (9) as

$$r_E = \sum_{i=1}^{N_{\text{BOTH}}} (w_{Pi} - w_{Bi}) r_i + \sum_{i=1+N_{\text{BOTH}}}^{N_P} w_{Pi} r_i - \sum_{i=1+N_P}^N w_{Bi} r_i. \quad (11)$$

The expression (11) can be interpreted as the decomposition of the return into one part due to the difference in choice of investment level, the “asset allocation” component, and the other part due to difference in choice of security type, the “security selection” component:

$$\begin{aligned} \text{asset allocation component} &= \sum_{i=1}^{N_{\text{BOTH}}} (w_{Pi} - w_{Bi}) r_i, \\ \text{security selection component} &= \sum_{i=1+N_{\text{BOTH}}}^{N_P} w_{Pi} r_i - \sum_{i=1+N_P}^N w_{Bi} r_i. \end{aligned} \quad (12)$$

This differs from the decompositions mentioned earlier is as follows. In (12), the only contribution to the asset allocation component comes from the difference in portfolio weight given to those securities in which both the managed and benchmark portfolios have invested. The contribution to the security selection arises only from the securities included in the managed

portfolio which are not part of the benchmark portfolio, and from securities included in the benchmark portfolio which are not part of the managed portfolio. Unlike the decompositions using asset classes, this decomposition based on individual securities is unique.

An Alternative Approach

The first approach presented above, requires the evaluator to have detailed information about each fund's composition. Often as an outsider who needs to evaluate a managed fund, we do not have detailed information about the weights of securities forming portfolios in each asset class. We now propose an approach for decomposition of excess return, based on asset classes, that is both reasonable and unique.

We first impose some conditions for any approach to the decomposition of excess return:

- 1) it should provide a method for decomposition which preserves the sign of the difference between asset allocation and security selection,
- 2) it should have a simple and relevant interpretation.

The first condition means that if we have a method which allows alternative decompositions, we require that if, for example, one decomposition gives the security selection component to be larger than the asset allocation component, then all decompositions using this method will give the security selection component to be larger than the asset allocation component. For example, for the allocations (4) and (5), we require, that

$$\sum_{i=1}^N w_{Bi} (r_{Pi} - r_{Bi}) > \sum_{i=1}^N r_{Pi} (w_{Pi} - w_{Bi}) \Leftrightarrow \sum_{i=1}^N w_{Pi} (r_{Pi} - r_{Bi}) > \sum_{i=1}^N r_{Bi} (w_{Pi} - w_{Bi}), \quad (13)$$

or the equivalent statement with the inequalities reversed. As shown below in Result 1, we can obtain a general decomposition procedure which preserves the size of the difference between the asset allocation component and the security selection component as well as the sign.

One approach to the decomposition of excess return, motivated by our first numerical example, is first to write, for N asset classes,

$$\begin{aligned} \text{the asset allocation component} &= \sum_{i=1}^N r_i^* (w_{Pi} - w_{Bi}) \\ \text{and the security selection component} &= \sum_{i=1}^N w_i^* (r_{Pi} - r_{Bi}). \end{aligned} \quad (14)$$

where the decomposition method will determine how to choose the returns r_i^* and the weights w_i^* . The i^{th} return r_i^* is used as a representative return of the i^{th} asset class, and the i^{th} weight w_i^* is used as a representative weight for the i^{th} asset class. Given the possibilities shown in Equations (4) and (5), we construct such representatives as linear combinations of the returns and weights of the managed and benchmark portfolios:

$$r_i^* = r_{P_i} + t(r_{B_i} - r_{P_i}), \quad w_i^* = w_{P_i} + s(w_{B_i} - w_{P_i}), \quad 0 \leq t \leq 1, \quad 0 \leq s \leq 1. \quad (15)$$

We can use Figure 1 to interpret Equations (14) and (15). As observed earlier, the allocation of region III in Figure 1, given by $(w_{P_i} - w_{B_i})(r_{P_i} - r_{B_i})$, is arbitrary. Let us assign some fraction, α , of this region to security selection, and the remainder, $1 - \alpha$, to asset allocation. Then we have, for each i ,

$$\begin{aligned} \text{the } i^{\text{th}} \text{ asset allocation component} &= r_{B_i}(w_{P_i} - w_{B_i}) + (1 - \alpha)(w_{P_i} - w_{B_i})(r_{P_i} - r_{B_i}) \\ \text{and the } i^{\text{th}} \text{ security selection component} &= w_{B_i}(r_{P_i} - r_{B_i}) + \alpha(w_{P_i} - w_{B_i})(r_{P_i} - r_{B_i}) \end{aligned} \quad (16)$$

We can write these as

$$\begin{aligned} \text{the } i^{\text{th}} \text{ asset allocation component} &= (\alpha r_{B_i} + (1 - \alpha) r_{P_i})(w_{P_i} - w_{B_i}) \\ \text{and the } i^{\text{th}} \text{ security selection component} &= ((1 - \alpha) w_{B_i} + \alpha w_{P_i})(r_{P_i} - r_{B_i}) \end{aligned} \quad (17)$$

Comparing (15) to (17) we see that $t = \alpha$ and that $s = (1 - \alpha)$. Thus $t + s = 1$.

Now impose the condition that if the asset allocation component exceeds the security selection component for one (r_i^*, w_i^*) set given by one choice of t and s , then this is true for all other t and s . That is, set

$$\sum_{i=1}^N r_i^*(w_{P_i} - w_{B_i}) - \sum_{i=1}^N w_i^*(r_{P_i} - r_{B_i}) > 0. \quad (18)$$

where r_i^* and w_i^* are given by (15), and establish the conditions on t and s so that (18) will be true for all t and s . We can establish another set of conditions on t and s by using (18) with the reverse inequality. Substituting (15) into (18) gives

$$\sum_{i=1}^N ((s - t) w_{P_i} r_{P_i} + (1 + t - s) w_{P_i} r_{B_i} + (t - s - 1) w_{B_i} r_{P_i} + (s - t) w_{B_i} r_{B_i}) > 0. \quad (19)$$

If we set $s = t$, then (18) becomes

$$\sum_{i=1}^N (w_{P_i} r_{B_i} - w_{B_i} r_{P_i}) > 0. \quad (20)$$

which is independent of s and t . Clearly reversing the inequality in (18), substituting (15) and then setting $s = t$ will give (20) but with the opposite inequality. Thus we can satisfy the first condition by setting $s = t$ in (19).

By construction, the left-hand side of (20) is the amount by which the asset allocation component exceeds the security selection component, for any decomposition of excess return of the form (14) in which $t = s$. Thus we have the following result.

Result 1: Let the excess of the managed portfolio return over the benchmark portfolio return be decomposed as in (14) where

$$r_i^* = r_{P_i} + t(r_{B_i} - r_{P_i}), \quad \text{and} \quad w_i^* = w_{P_i} + t(w_{B_i} - w_{P_i}). \quad (21)$$

Then, for any t ,

$$\text{asset allocation component} - \text{security selection component} = \sum_{i=1}^N (w_{Pi} r_{Bi} - w_{Bi} r_{Pi}). \quad (22)$$

Notice that in the introductory example, we have $t = 0$ and $s = 1$ in Equation (2) and $t = 1$ and $s = 0$ in Equation (3), confirming that those two decompositions given will, in general, give different results for the excess of the asset allocation component over the security selection component.

If we now set $t = s$, then since $t + s = 1$, it follows that $t = 1/2$. Thus we obtain a second result:

Result 2: *Let the excess of the managed portfolio return over the benchmark portfolio return be decomposed as in (14) where, as in Result 1,*

$$r_i^* = r_{Pi} + t(r_{Bi} - r_{Pi}), \quad \text{and} \quad w_i^* = w_{Pi} + t(w_{Bi} - w_{Pi}). \quad (23)$$

Then the unique value of t which satisfies the decomposition (14) is $t = 1/2$.

Substituting $t = s = 1/2$ into (14) yields

$$\begin{aligned} \text{asset allocation component} &= \sum_{i=1}^N (w_{Pi} - w_{Bi}) \left(\frac{r_{Pi} - r_{Bi}}{2} \right), \\ \text{security selection component} &= \sum_{i=1}^N (r_{Pi} - r_{Bi}) \left(\frac{w_{Pi} - w_{Bi}}{2} \right). \end{aligned} \quad (24)$$

We see from (24) that Result 2 also satisfies the second criterion: that the decomposition should have a simple and relevant interpretation. Result 2 says that using the average of the managed and benchmark portfolio returns and weights will preserve the size of the asset allocation component over the security selection component.

It is also possible to get the $t = 1/2$ result (24) without explicitly imposing $t = s$. Using vector notation, we define the N -dimensional column vectors \mathbf{w}_P and \mathbf{w}_B as, respectively, the vectors of managed and benchmarks portfolio weights, so that, for example the i^{th} component of \mathbf{w}_P is w_{Pi} . Define return vectors, \mathbf{r}_P and \mathbf{r}_B , similarly for their return. Then the return on the managed portfolio is $\mathbf{w}_P^t \mathbf{r}_P$ and the return on the benchmark portfolio is $\mathbf{w}_B^t \mathbf{r}_B$, and hence the excess return can be written

$$r_E = \mathbf{w}_P^t \mathbf{r}_P - \mathbf{w}_B^t \mathbf{r}_B, \quad (25)$$

which is Equation (1) written in vector notation. Analogously to equations (2) and (3) we can decompose the excess return given by (25) in two ways:

$$r_E = (\mathbf{r}_P - \mathbf{r}_B)^t \mathbf{w}_B + (\mathbf{w}_P - \mathbf{w}_B)^t \mathbf{r}_P, \quad (26)$$

or as

$$r_E = (\mathbf{w}_P - \mathbf{w}_B)^t \mathbf{r}_B + (\mathbf{r}_P - \mathbf{r}_B)^t \mathbf{w}_P, \quad (27)$$

Adding (26) and (27) we obtain

$$r_E = (\mathbf{w}_P - \mathbf{w}_B)^t \left(\frac{\mathbf{r}_P + \mathbf{r}_B}{2} \right) + (\mathbf{r}_P - \mathbf{r}_B)^t \left(\frac{\mathbf{w}_P + \mathbf{w}_B}{2} \right). \quad (28)$$

Writing $\Delta \mathbf{w}$ for $\mathbf{w}_P - \mathbf{w}_B$ and $\bar{\mathbf{w}}$ for $(\mathbf{w}_P + \mathbf{w}_B)/2$, and defining $\Delta \mathbf{r}$ and $\bar{\mathbf{r}}$ similarly, we can decompose the excess return as

$$r_E = \Delta \mathbf{w}^t \bar{\mathbf{r}} + \Delta \mathbf{r}^t \bar{\mathbf{w}}, \quad (29)$$

where

$$\begin{aligned} \Delta \mathbf{w}^t \bar{\mathbf{r}} &= \text{asset allocation component} \\ \text{and } \Delta \mathbf{r}^t \bar{\mathbf{w}} &= \text{security selection component.} \end{aligned} \quad (30)$$

This is (24) written in vector notation.

This approach divides the third part of the excess return, described in Figure 1, equally between asset allocation and security selection portions. For example, applying this approach to our second numerical example presented earlier, will result in attributing 3.6% of the excess return to asset allocation and 3.4% to security selection. These percentages are exactly the midpoint of the percentages obtained by applying Equations (2) and (3).

Conclusions

It is common practice to consider a managed portfolio and its benchmark portfolio to be portfolios of asset classes. In this article, we show that attempting to decompose the difference in returns between the managed and benchmark portfolios in term of these asset classes cannot be accomplished uniquely. We show that if the managed and benchmark portfolios are expressed in terms of individual securities, then the decomposition of the return difference into asset allocation and security selection components is unique. For the case in which the analyst is limited to information about the asset classes, we also derive a technique for decomposing the return into asset allocation and security selection components which deals with the ambiguity simply and intuitively.

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DO INVESTORS VALUE PAYOUT INCREASES? EVIDENCE FROM THE CANADIAN INCOME TRUST SECTOR

Investor response to changes in income trust payouts is measured using the implied cost of capital. As trust units are purchased primarily for the income stream, valuation using discounted cash flow models is appropriate and adverse responses to associated transaction costs are considered unlikely. The data reveal that investors in this sector do not reward the organization for payout growth explicitly; rather financing cost is reduced relative to the trust's ability to fund an increase, similar to risk premiums in fixed income markets.

Introduction

This study investigates the investor reaction to distribution changes using the implied unit cost of capital as an inverse measure of valuation in the income trust sector of the Canadian marketplace. Income trusts are organizational forms that pay out relatively large and regular monthly cash flows to their investors derived from eligible dividends, interest income and return of capital. These distributions essentially drain the income trusts of their excess funds, as retained funds are taxed at double the normal marginal taxation rate. As a result, there is little expectation of substantial growth within the organization stemming from reinvestment opportunities and the residual value of the firm should reflect solely the value of the future payout stream. Thus the resulting securities known as income trust units are ideal candidates for fundamental valuation techniques, discounting the anticipated future cash flows, and this leads to the chosen methodology where the implied cost of capital derived from the valuation models captures investor sentiment with respect to distribution changes.

Our purposes in this paper are three: to examine the effect of payout policy on the cost of capital in this sector, to recommend a realistic model of valuation, and to estimate the cost of capital in the income trust sector of the Canadian marketplace. Previous work by the author has indicated that incorporating geometric growth in simple implied cost of capital models tends to inflate the cost of capital estimate. Does an increase in the distribution result in a similar effect? In an efficient market where payout growth is valued, the announcement of a payout increase should spark an immediate and suitable increase in the security price while the cost of capital remains unchanged. Thus when the model is correctly specified, there should be no significant

change in the cost of capital on the announcement date. Using three empirical valuation models, an event study captures the net effect on the cost of capital to indicate the actual results of increasing distributions to unit-holders.

Cost of capital estimates may be obtained either from the risk and return considerations of the various pricing models: Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT), and the Fama-French 3 factor model, or from implied models which assume fundamental valuation of securities in the marketplace, based on the predicted future cash flows. Herein, we investigate cost of capital from the second perspective comparing models identified in past studies. All stem from the dividend discount model in which cash flows received in the future are discounted at the firm's cost of capital. In the simplest case, dividends do not grow into the future and the infinite series nicely sums to equal the quotient of the dividend divided by the capital cost. This model is suitable for those income trusts that have never raised their distributions and those that reduced their distributions due to distress. Payouts do increase for the majority of income trusts, however, requiring some estimate of future increases for proper valuation. The second empirical approach adapts the geometric growth model of Gordon (1959) to account for the non-constant growth observed in practice, with lower growth estimates following periods of stationary distributions. Finally, a probabilistic additive model adopted from Hurley and Johnson (1994, 1997) provides an alternative solution based on a pattern of distribution increases, which corresponds to discrete fractions of the trading currency. Comparison of the implied cost of capital estimates from the three models in a nonstandard event study at the time of the announcement of the increase provides an illustration of the investors' reaction to the information release.

Income trust securities, known as units, trade mainly on the Toronto Stock Exchange, the major Canadian equity market, but their payout structure resembles a high-yield income stream and the distributions derive from subordinated interest, dividends, and return of capital. The implied cost of capital is a weighted cost of capital. These securities allowed Canadian investors to easily purchase a high-yield debt obligation combined with an equity stake in the underlying firm, while the principle location for most Canadian risky debt issues is the U.S. marketplace (Yago and Trimath (2003)). The cost of capital for the income trust sector is of interest in its own right because the market value of these organizations was as high as 10% of the TSX at one point, meaning the sector cost of capital affected the cost of investment in Canada. October 31, 2006 tax legislation has rendered the income trust organizational form ineffectual from a taxation perspective commencing in 2011 and to the extent that the unit cost of capital differs from an equity cost of capital in the remainder of the market, this may have an impact on Canadian financing costs. Fortunately, recent work is available for comparison, as Witmer and Zorn (2006) completed an analysis of the cost of equity capital in Canada for the Bank of Canada. The methodology presented here allows estimation of the implied cost of capital in the income trust sector that is directly comparable to their results.

In the income trust sector, the payout of the majority of funds in distributions limits the growth potential without eliminating it, to provide a reasonable backdrop to evaluate these models. These funds provide a relatively transparent valuation scenario with frequent, regular payments on monthly intervals. Thus payout increase announcements also occur relatively often

and just prior to an opportune valuation based on the next period's distribution. The event study is organized as follows. In section 2, we review the literature and describe the derivations of the valuation models to be tested here. Section 3 describes the data, the methodology used to estimate the implied costs of capital, and the results of our calculations. In section 4, we conclude.

Distributions and Implied Cost of Capital Models

In recent years, the accounting and finance literature has linked the implied cost of equity capital to disclosure and governance issues (Botosan, and Plumlee (2002), Guedhami and Mishra (2009)), country legal institutions (Hail and Leuz (2006)), earnings restatements (Hribar and Thorne Jenkins (2004)), and expected returns relative to risk (Hughes, Liu, and Liu (2009), Pastor et al (2008)). Most of these studies rely either on the models developed to explain the market risk premium by Claus and Thomas (2001), Gebhardt et al (2001), and Easton (2004), or on the Ohlson and Juettner-Nauroth (2005) equation. In all cases, the estimations of the cost of capital depend on analysts' estimates of expected earnings since the payout ratio from equity securities has been a relatively low percentage of actual profits. Thus firm growth linked to future earnings is an important consideration in the calculation of the residual value of the firm. Unfortunately, analysts' predictions are known to be limited to larger firms, upwardly biased and stale.

Herein we consider the observed monthly distributions received by unit-holders of income trusts, which are virtually complete payouts of excess cash from three sources: eligible dividends, return of capital, and interest/income. Even with the direct tax cost of retaining cash within the income trust organization, we observe evidence of smooth, stable payouts with reductions only encountered in more severe economic conditions.¹ Because retention of cash within the income trust is considered low, the distributions represent the greatest portion of value for investors considering the unit securities and discounted cash flow models are an appropriate approach to security valuation. For this reason, we conduct a nonstandard event study, where the implied cost of capital is tracked over the event window, with month zero set at the closest opportune valuation period to the announcement date of a distribution change. In an efficient market with the proper valuation model, the security price should rise (fall) abruptly on announcement of an increase (decrease), but the implied cost of capital should not change significantly.

The models used in this analysis consider valuation based on assumptions of no growth, constant geometric growth in accordance with Gordon's (1959) model, and the probabilistic additive model of Hurley and Johnson (1994,1997). The probabilistic geometric model presented in Hurley and Johnson was also considered but empirical modeling of this case is mathematically equivalent to the Gordon (1959) approach when geometric averaging of increases is considered and the model would be inconsistent, overstating growth where arithmetic averages estimate the geometric increases.

¹ Only two of the two hundred and two income trusts under consideration used a residual income method, paying erratic cash flows.

The dataset for the study commences in February, 2004, and extends until May, 2008, several months before the onset of the financial crisis that distorted cost of capital estimates as investors retreated from securities markets. Exactly one month before the next distribution is to be paid, the present value of the future monthly cash flows is set equal to the unit price in the market in accordance with the discounted cash flow models. The first, basic model is the no growth solution for cost of capital, presented in equation (1a), which corresponds to investors' beliefs on the expected future cash flows on all valuation dates prior to October 31, 2006. On this date, there was an abrupt tax change where income trust distributions were to be taxed as normal corporate profits prior to their release to unit-holders, effective in January, 2011.

$$k = \frac{\text{Distribution}}{\text{Price}} \quad (1a)$$

where k is the implied cost of capital, *Distribution* is the payout at the end of the period, and *Price* is the market price of the unit security at the beginning of the period.

Without an adjustment to the valuation model, the data sample would be split approximately in half, but a previous study by Glew and Johnson (2010) indicated that an efficient market reaction was observed at that time. That is, unit valuation was preserved by considering the sum of payouts prior to additional taxation as an annuity and combining those cash flows with the taxed perpetuity beginning in January, 2011. Equation (1b) is the resulting model, which provides an implied cost of capital estimate via an iterative solution. The starting value for the updating loop, k_1 , is obtained from equation (1a) and repeated substitution into equation (1b) will provide an implied cost of capital when convergence between k_{j+1} and k_j is within a specified level of tolerance.

$$k_{j+1} = \frac{\text{Distribution}}{\text{Price}} \times \left[1 - \frac{i\tau}{(1+k_j)^n} \right] \quad (1b)$$

where k_j is the implied cost of capital estimated in iteration j , *Distribution* is the payout at the end of the period, *Price* is the market price of the unit security at the beginning of the period, i is the interest/income portion of the distribution, τ is the expected corporate tax rate in 2011, and n is the number of months preceding the increased taxation.

The no growth scenario sets a lower limit on the cost of capital that might be considered a close approximation to the expected payout from an established organization that distributes most of its earned cash to investors. In fact, 35 of the 202 income trusts considered did not raise their distributions through the period of study, while 104 increased their payouts in a continuous fashion. Geometric growth in each period is a common assumption in the valuation models as the infinite series simplifies once again to a quotient, identified as the Gordon Growth model (1959). The implied cost of capital is obtained by algebraic rearrangement of that pricing model into equation (2a). As above, the period following Halloween of 2006 requires iterative solution using equation (2b).

$$k = \frac{\text{Distribution}}{\text{Price}} + g \quad (2a)$$

where k is the implied cost of capital, *Distribution* is the payout at the end of the period, *Price* is the market price of the unit security at the beginning of the period, and g is the geometric growth rate of the distribution in each period.

$$k_{j+1} = \frac{\text{Distribution}}{\text{Price}} \times \left[1 - i\tau \times \left(\frac{1+g}{1+k_j} \right)^n \right] + g \quad (2b)$$

where k_j is the implied cost of capital estimated in iteration j , *Distribution* is the payout at the end of the period, *Price* is the market price of the unit security at the beginning of the period, i is the interest/income portion of the distribution, τ is the expected corporate tax rate in 2011, g is the geometric growth rate of the distribution in each period, and n is the number of months preceding the increased taxation.

The implied cost of capital is always greater than the geometric growth in this scenario, so an overestimation of the growth rate distorts the cost estimate upwards. The two recognized shortcomings of the Gordon Growth model are that payouts are seldom increasing in each period for most firms paying dividends and that payouts cannot continue to increase at a greater pace than the expansion in the economy where the organization does business. The academic literature utilizing models of Claus and Thomas (2001), Easton (2004), Gebhardt et al. (2001), and Ohlson and Juettner-Nauroth (2005) all deal with the second concern by restricting later growth to industry averages or estimates of future inflation rates. The first drawback can be treated by using a probabilistic model, where there is a certain probability that the payout will increase and otherwise it remains unchanged. This binomial treatment of the geometric model and an additive counterpart are presented by Hurley and Johnson (1994, 1997), while Yao (1997) introduces a trinomial version where a decreasing dividend can be included without outright consideration of bankruptcy. Of these models, the binomial additive approach seems to best reflect the patterns of increases in evidence in the securities markets.

From a practical point of view, distributions often increase by a given standard amount related to the value of the stock, the distribution, and the units of the currency. For income trusts, the majority of which pay monthly dividends, this additive amount is likely to equal some number of Canadian cents or a fraction thereof. For this case, the Hurley and Johnson (1994, 1997) additive model of valuation results in a quadratic form and the implied cost of capital solves as the positive root of the equation presented as (3a). An approximation of the implied cost of capital in the period following the 2006 tax announcement is then iteratively determined using equation (3b).

$$k = \frac{(\text{Distribution} + p\Delta) + \sqrt{(\text{Distribution} + p\Delta)^2 + 4(p\Delta)\text{Price}}}{2 \times \text{Price}} \quad (3a)$$

where k is the implied cost of capital, $Distribution$ is the payout at the end of the period, $Price$ is the market price of the unit security at the beginning of the period, p is the probability of a payout increase, and Δ is the amount added to the distribution in each period.

$$k_{j+1} = \frac{(Distribution + p\Delta) + \sqrt{(Distribution + p\Delta)^2 + 4(p\Delta)Price}}{2 \times Price} \times \left[1 - \frac{i\tau}{(1 + k_j)^n} \right] \quad (3b)$$

where k_j is the implied cost of capital estimated in iteration j , $Distribution$ is the payout at the end of the period, $Price$ is the market price of the unit security at the beginning of the period, p is the probability of a payout increase, Δ is the amount added to the distribution in each period, i is the interest/income portion of the distribution, τ is the expected corporate tax rate in 2011, and n is the number of months preceding the increased taxation.

The solution of the implied cost of capital in either of the growth models will produce a value greater than the estimated geometric growth, g , or the additive increase, Δ , based on the original derivations of the underlying pricing formulae. Where the payout increases are unreasonably high, the implied costs of capital are also forced to unrealistic levels. Higher absolute estimates of the cost of capital do reflect an investor bias against the payout increases, particularly if the estimates from the growth models greatly exceed the estimates from models in which no growth is presumed. This allows a second test of investor behaviour, where the organizations that do not increase distributions can be compared to those where increases are found.

Methodology and Results

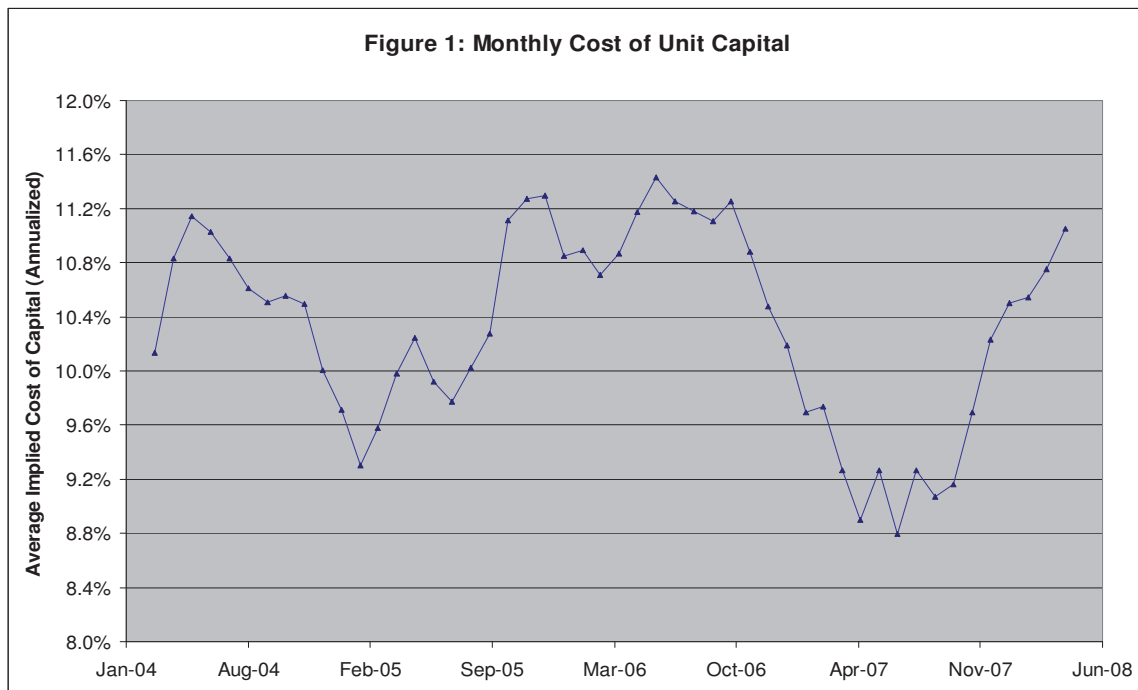
The original list of income trusts was assembled from the TSX Investcom.com listing of trusts on July 31, 2006, and price and distribution data were collected from Thompson Financial's Datastream database for the period from February, 2004 to May, 2008. Income trusts paying monthly distributions were the target of this study, so the data was reduced to provide the price of the organization exactly one month before the distribution was paid. Press releases for the next distribution and associated increases are generally issued several days before the date of the recorded price and these were reviewed on the SEDAR online securities document source. This source provided verification that distribution increases had not been previously announced in earlier press releases and quarterly reports. In very few cases, the data needed correction to account for stock splits during the analysis period, which was incorporated manually using the SEDAR reports.

For stability of estimates, the trusts were required to trade for at least twenty-four periods (two years) during the period of analysis, which terminated before the plunge on the equity markets due to the recent financial crisis. The original sample consisted of 202 income trusts, in which twenty-four (24) trusts cut distributions, thirty-two (32) trusts held payouts constant, one hundred and five (105) increased distributions, and forty-one (41) increased distributions before a subsequent decrease in the payout. In the case of a distribution increase or decrease, we required nine months of stable payouts prior to the event in order to evaluate the magnitude of the cost of capital change relative to an established variance. There were 179 trust-events associated with a

distribution increase, 37 trust-events with a distribution cut, and 45 income trusts with unchanging distributions over the minimum two-year period.

For the income trusts that did not change or decreased their payouts, the no-growth model of unit pricing in equations (1a) and (1b), covered the periods before and after Halloween 2006, respectively. The implied cost of capital was calculated in each case, and the data for income trusts with constant payouts is included in Figure 1.

The results do show some variation on a month to month basis and the annual trends follow similar yearly costs of equity capital as those determined by Witmer and Zorn (2007). The 2004 average reported here is 10.61% compared to their estimate of 10.75%, the 2005 average here is 10.21% compared to 10.44%, and the 2006 estimate is slightly higher here at 11.01% compared to 10.69%. Overall, the average annualized cost of capital was 10.2% during the period of study. A surprising and rather informative trend is the sizable reduction in capital costs in 2007, leading up to the financial crisis. Income trust investors seem to be offering extremely low financing costs in that year. Bank of Canada data are not available for comparison as that series ends in 2006. Overall, the market is relatively bullish throughout the period, avoiding the asymmetric considerations of announcements discussed by Below and Johnson (1996), when market sentiment alters the size of the announcement effect.



Decreases in distributions were organized into an event study comprising the average of thirty-three income trust results. Four income trusts that decreased distributions were removed since the distribution decrease was announced before the normal monthly press release. A

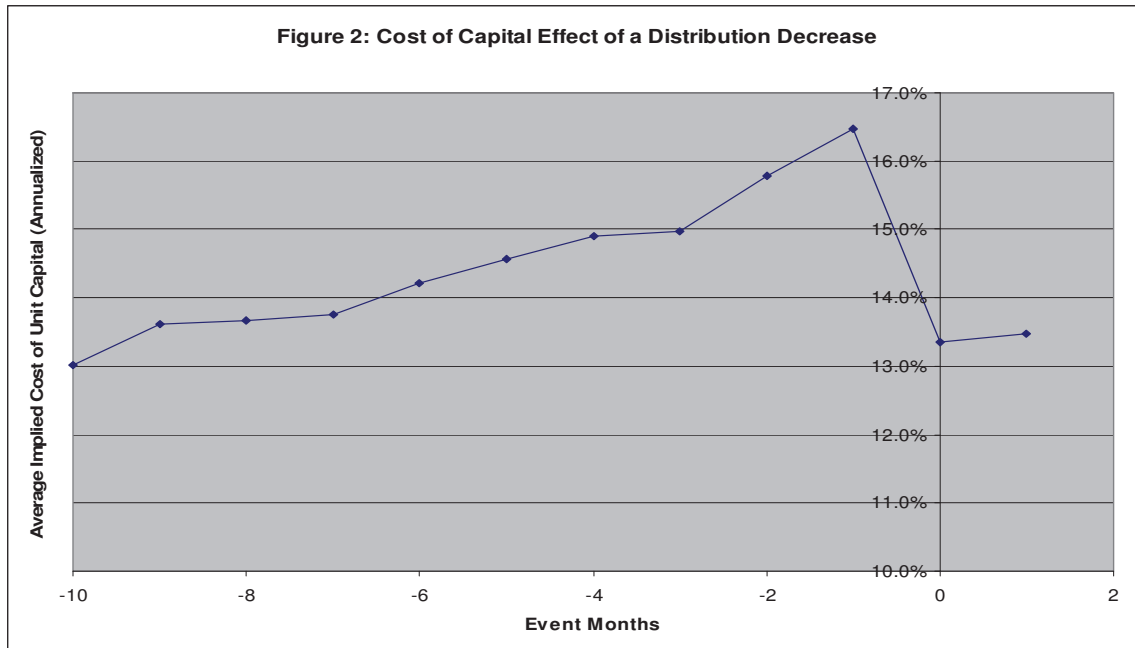
significant decrease in the cost of capital estimate occurs on the month of the distribution cutback, which is inconsistent with an efficient market response. Table 1 and accompanying Figure 2 indicate, however, that the drop in the event month is actually a re-establishment of the previous level, since the cost of capital had risen in the six months before the decrease was announced.

It is entirely possible that this be the leakage of information results from recognized reporting of results rather than the release of confidential information indicated by King (2009) prior to mergers. In the nine month lead-up, three quarterly reports would be available and poor results, with associated public discussions, would create anticipation of the payout decrease in the market if the current distribution were deemed unsustainable. Management discussion and analysis usually includes a reference to the distribution payout ratio relative to distributable cash, which is a non-GAAP measure. When these ratios approach or exceed 100%, some consideration of a cut in distributions is reasonable and the price of shares would necessarily drop to reflect the likelihood of lower future cash flows.

Table 1: Cost of Capital Changes Prior to a Distribution Reduction

Thirty-three income trusts announced a decreased distribution in the month before the payout after a nine-month period of stable payments. The annualized cost of capital was calculated in each month based on a no-growth valuation model where distributions are considered perpetual. $\Delta C1$ is the one month change in the cost of capital and column 3 presents the t-statistic relative to the standard deviation estimated from Event Month -10 to the month before the change. Significant differences at 1% significance are indicated in bold font.

	Cost of Capital (%)	t-statistic = $\Delta C1 / \text{StDev}(\text{Cost})_{t-1}$
Event Month -10	13.02	
Event Month -9	13.62	
Event Month -8	13.67	0.126
Event Month -7	13.75	0.227
Event Month -6	14.21	1.360
Event Month -5	14.57	0.843
Event Month -4	14.90	0.628
Event Month -3	14.97	0.111
Event Month -2	15.79	1.186
Event Month -1	16.46	0.783
Event Month 0	13.35	-2.924
Event Month +1	13.47	0.113



It is noteworthy that the trusts that did lower their payouts have higher estimates for the cost of capital on average than those with unchanging distributions. Comparison between the figures indicates that the base level of the cost before the pre-event rise is 3.16 percentage points higher than the average month for trusts with stable distribution streams, while the monthly standard deviation of the cost of capital depicted in Figure 1 is only 0.732% (t-stat = 4.324, p-value = 3.66E-5). Thus the higher risk of the less stable firms is associated with a significantly higher financing cost, as expected in a competitive market.

When investigating the cost of capital for those firms that increase distributions in the period, an appropriate valuation model must also be determined. The final screen of press releases prior to distribution increases and decreases indicated that twelve income trusts had pre-announced their distribution increases, either in quarterly reports or separate press releases in the months ahead of the distribution declaration notice, which dropped the sample of trust-events related to an increase to 157. The implied monthly cost of capital in each of these events was estimated empirically, using the four models introduced above. Where the valuation model is appropriate, there should be no significant change in the cost of capital at the time of the announcement of the distribution increase.

No growth is the baseline model described in equations (1a) and (1b) and this requires no estimate of growth to provide an implied cost of capital. Constant geometric growth described by Gordon (1959) in his growth model is estimated using equations (2a) and (2b). The empirical method used to estimate growth in this case was to assume that distributions would grow monthly at an established growth rate estimated from past increases. The first observed distribution level sets the reference payout and a payout increase that occurs after several months is converted to the equivalent effective monthly increase that would give rise to the same overall increase. This

provides a smoothed estimate of the growth rate as the data series moves through the four year sample period. From a practical viewpoint, this is equivalent to a buy-and-hold investment strategy, where the investor models future increases on the experience of past increases, rather than through analysts' predictions.

The probabilistic additive growth model from Hurley and Johnson (1994, 1997) described in equations (3a) and (3b) requires the estimation of an additive change (Δ) to the distributions: the average of past payout increases in a corresponding dollar amount. The assumption here is that all future increases will be similar to past increases in an absolute sense, independent of the size of the distribution in future periods. The probability is assessed in exactly the same manner as above, representing the experience of an investor who has followed the unit price and distribution performance since the beginning of the sample period. This model resolves the problem of geometric increases that might out-pace economic growth in the jurisdiction and simulates a more realistic experience in the market, where distribution increases correspond to units of currency or fractions thereof.

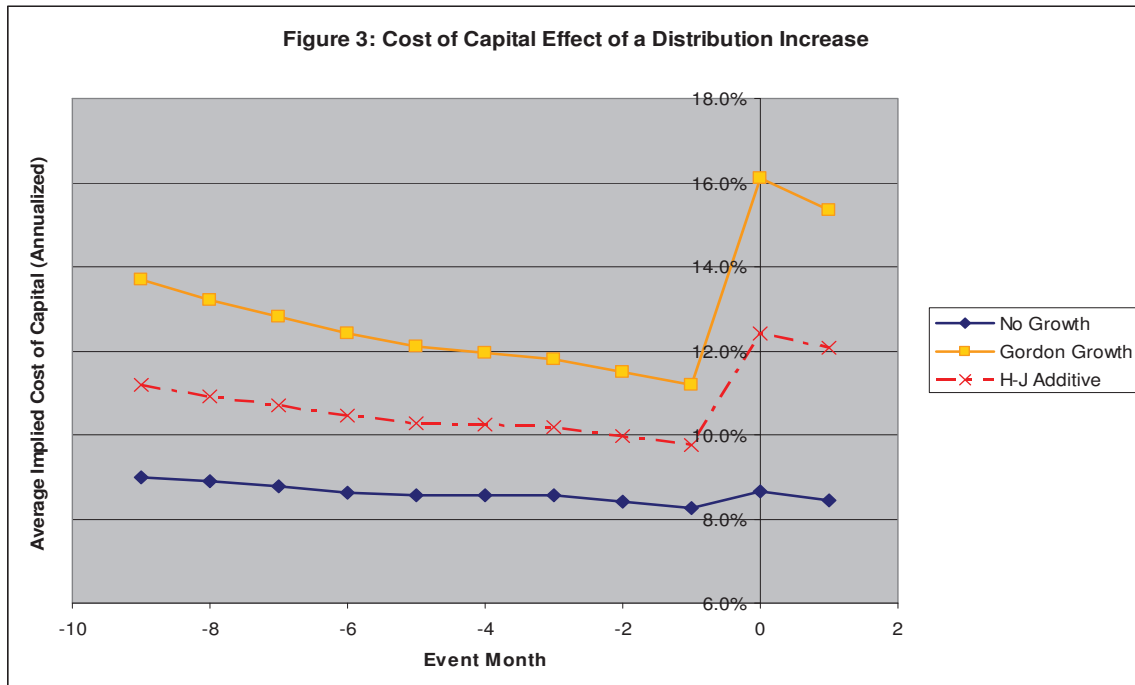
Table 2: Cost of Capital Changes Prior to a Distribution Increase

Thirty-three income trusts announced a decreased distribution in the month before the payout after a nine-month period of stable payments. The annualized cost of capital was calculated in each month based on a no-growth valuation model where distributions are considered perpetual. $\Delta C1$ is the one month change in the cost of capital and column 3 presents the t-statistic relative to the standard deviation estimated from Event Month -10 to the month before the change. Significant differences at 1% significance are indicated in bold font.

	No Growth		Gordon Growth		H-J Additive	
	Cost of Capital (%)	t-statistic	Cost of Capital (%)	t-statistic	Cost of Capital (%)	t-statistic
Event Month -9	8.98		13.70		11.19	
Event Month -8	8.90		13.22		10.92	
Event Month -7	8.79	-1.849	12.81	-1.120	10.71	-1.073
Event Month -6	8.63	-1.595	12.42	-0.865	10.46	-1.056
Event Month -5	8.55	-0.551	12.11	-0.547	10.29	-0.570
Event Month -4	8.56	0.046	11.95	-0.265	10.25	-0.106
Event Month -3	8.57	0.054	11.79	-0.228	10.19	-0.142
Event Month -2	8.41	-0.886	11.48	-0.437	9.96	-0.625
Event Month -1	8.26	-0.780	11.20	-0.369	9.76	-0.484
Event Month 0	8.67	1.781	16.11	5.999	12.42	5.826
Event Month +1	8.45	-0.960	15.35	-0.937	12.08	-0.761

The observed response to a distribution increase mirrors the decrease in payout as illustrated in Figure 3 and accompanying Table 2. The increase in distributions results in an unanticipated rise in the cost of capital as the price elevation of the income trust unit has not kept pace with the size of the distribution increase. Only in the zero growth model, has the cost of capital re-established itself within the former range of results. The rise on announcement of the payout increase also proves insignificant in the case of no growth, indicating that investors are not rewarding the income trust appropriately for an increased cash distribution. In other words, the

new level of payout is considered to be the level of all future cash flows, not an indicator of future increases to cash flows. This is the case whether a constant geometric increase or probabilistic additive increase might be expected.



The models align in the expected order, where the geometric increase inflates the implied cost of capital more than an additive increase. In all cases, there is a reduction in the implied cost of capital leading up to the payout increase. In the no growth model, this may be attributable to positive information releases that occur prior to the announcement of a larger cash payout. In the nine months preceding the distribution increase, the implied cost of capital has dropped 0.72%, which is far lower than the 3.5% run-up observed in the case of a decrease. As with previous studies on payout increases and drops, there does seem to be an asymmetric reaction observed, where good news and increases are rewarded less than bad news and decreases are punished.

With the growth models, however, reduction in the estimated cost of capital arises partly from the method of estimation of growth in each model. As the period from the last distribution increase extends outward, the growth estimate or the associated probability of an increase must necessarily drop in response to the inactivity. The implied cost of capital drops in a corresponding manner, as it is estimated relative to the growth estimate in each model. The geometric model indicates a steeper decrease in the leading period since the growth has a higher assumed effect in future periods. If the no growth model offers a reliable estimate of the true information effect, then the estimation impact due to the methodology is almost 1.8% in the Gordon Growth model and 0.7% in the Hurley-Johnson Additive model. Unfortunately, the error cannot easily be removed from the empirical estimation techniques as smoothing the growth

parameter would assume that the investor has knowledge superior to that available in the market at the time the distribution and price are observed. The error does provide a bias against finding a significant rise around the time of announcement of the distribution increase, but both of the growth models indicate significant implied cost of capital increases at high statistical confidence levels. These results are not affected when an after-tax cost of capital is used in the models.

The event study using the implied cost of capital has indicated similar behaviours in the income trust sector as those observed in the remainder of the dividend-paying portion of the stock market. There is a smoothing of payout increases and decreases first described by Lintner (1956), but information releases lead to a change in investor valuation of the security in the months leading up to the announcement. For an expected distribution increase (decrease), the implied cost of capital drops (rises) in the lead-up period due to its inverse relationship with the unit price. The effect associated with the increase is lower than that observed in the case of an eventual decrease in the payout, an empirical result similar to findings of Benesh et al. (1984) and Eades et al. (1985). One advantage to studying the income trust sector, when considering payout decreases, is the necessity for the trust to continue with a reduced payout in these negative situations. Due to taxation penalties and investor sentiment, the trust must continue with some cash distribution. The organization is essentially valued as an income stream, so the conversion to a growth firm without a payout is untenable. Distribution suspensions are observed, but failure to reinstate the cash flow is often followed by the trust's demise. When a lower distribution is announced, the implied cost of capital can indicate how investors react to the change.

The time for the growth models to return to 'normal' estimates was also investigated in a smaller sample, as 50 income trusts altered their distributions again within the six months of the previously recorded increases. For the 107 trust-events remaining, the cost of capital remained above the nine-month estimate, consistently more than one standard deviation above that average. This precludes the use of the models that estimate a growth component to provide any reasonable prediction of the cost of capital in this sector during the available sample period, since the implied cost estimate is not stationary.

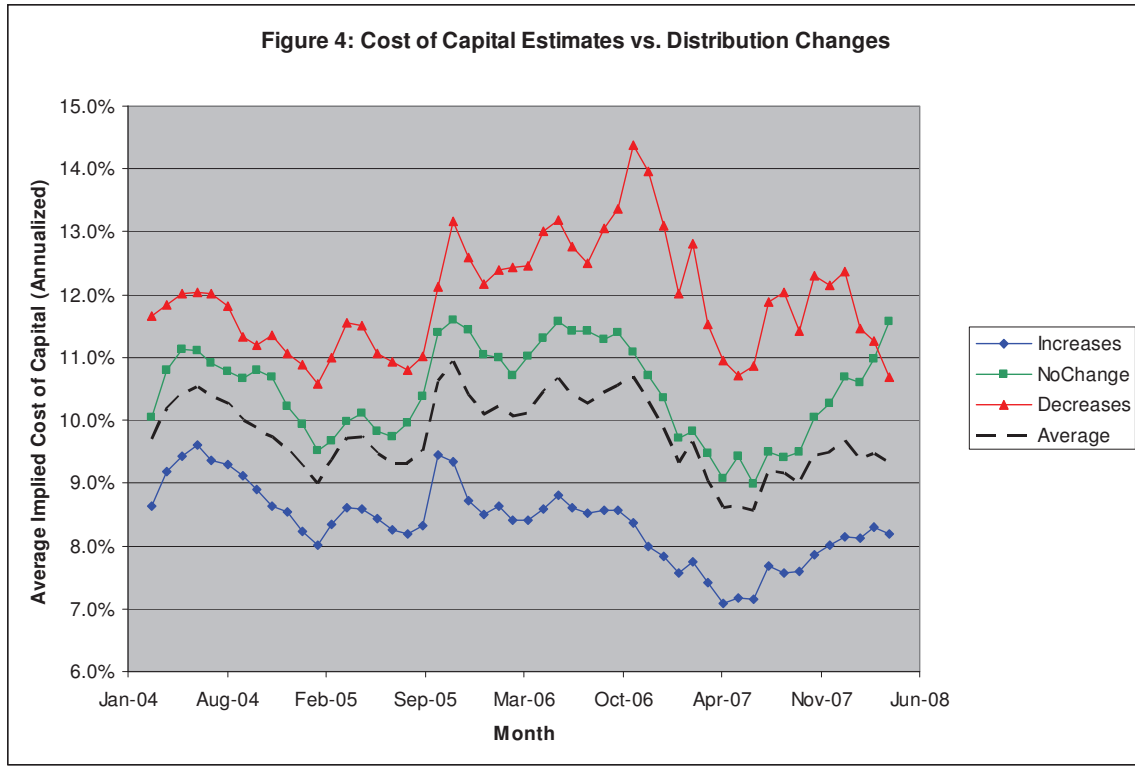
Investors in this sector are not valuing an income trust that increases its payout based on the observed growth in distributions. Thus estimation of the implied cost of capital without growth provides a low estimate of the firms actual cost of funds, since the payout was actually increased. A behavioural risk premium response in the Canadian market seems to dominate the fundamental valuation approach. These organizations are being rewarded for maintaining a low payout ratio and the ability to increase dividends in the future, but not for the dividends themselves. A form of risk aversion is coming into play in the income trust sector where a secure regular cash flow is valued more highly than a potential greater return, not unlike the liquidity preference described by Keynes (1936), in reference to the Great Depression. The result is insightful but not unexpected in the period when income trusts flooded the Canadian marketplace, following the demise of several notable 'growth' firms.²

² Worldcom, Enron, Tyco, and Global Crossing all failed in 2002, and Nortel faltered during the same period, frequently restating its financial information.

Certainly, this finding opens the door for further research into the Canadian dividend valuation effect. When considering the domestic appetite for risk, Witmer and Zorn (2006) demonstrate that the implied cost of capital in Canada is consistently above that of the U.S., which would imply that greater risk aversion exists in our smaller jurisdiction. Conclusions with respect to the behavioural aspect of risk aversion, however, are confounded with the size of the domestic market and liquidity considerations related to trading volume and frequency. In related domestic dividend literature, Bauer et al. (2008) have identified significantly reduced dividend valuation in the price drop off on the ex-dividend date relative to studies in the U.S. market (Elton and Gruber (1970), Bali and Hite (1998)) and the authors associate that with a nuisance effect, where the reinvestment effort associated with the payout makes the cash flow less valuable than a comparable capital gain. Such an effect should be negligible in the income trust market, where sizable payouts are the incentive for investment. In a future study, untangling this relationship between liquidity and investors' valuation of securities might be attempted.

Quantification of the cost of capital in the income trust sector overall requires the combination of the three categories identified above: 1) those that have not changed their distributions, 2) those that have decreased their distributions, and 3) those that have increased their distributions. There were 35 income trusts that did not change the distribution, 63 income trusts that decreased their distributions at least once, and 104 income trusts that only increased their distribution in the period. In all cases, the no growth model is the most appropriate form for estimation of the implied cost of capital.

Figure 4 illustrates the three different levels corresponding to these categories and an overall weighted average that is our best estimate for the sector for the fifty-one month period from February, 2004, to May, 2008. The yearly average cost of capital was 10.0% in 2004, 9.72% in 2005, 10.35% in 2006, and 9.17% in 2007. In the first four months of 2008, the average implied cost of capital rose again to 9.45%. These estimates are almost seventy-five basis points lower than the 2004/2005 results reported by Witmer and Zorn (2006), and more than thirty basis points lower than their 2006 estimate. These lower estimates are more interesting still, since the average organization size in our sample was \$241 million (U.S.) compared to a median firm size of \$364 million (U.S.) in the Bank of Canada study which relied on analysts estimates of earnings to evaluate the implied cost of capital. Thus the income trust sector seemed to have a lower cost of capital than the rest of the Canadian market in our period of study, based on the estimates best supported by the data.



There remains a relatively large month-to-month variation in the cost of capital within the sample period, with the lowest estimates occurring from April to October of 2007, a period of growth in the CPI index and the TSX composite index, with sustained yields in the treasury auctions. In fact, the risk premium above the six-month treasury bill rate was less than 5% throughout that period and fell below 4% in the month of July, 2007. Over the entire sample period, the risk premium in the income trust sector was 6.4% above the yield of the six-month Treasury bill. With such a low premium, it is safe to assume that evaluation through the period was relative to a strong (bull) market for the sector.

Conclusion

Positive valuation responses to payout increases are lower than the negative responses to payout reductions in the trust sector, similar to published results in the dividend literature. For the average distribution increase of 11.58%, the cost of capital was unchanged while the average decrease of 27.53% resulted in a cost of capital run-up of nearly 3%. In the case of distribution decreases, a significant drop in the cost of capital on the event day corresponds to a reversal of the run-up in financing costs in the six months before. Although the organization attempted to smooth the distribution (Lintner (1956)) to retain unit-holder support, information in other forms lowered the price in the market, pre-empting the effect of the announcement in the official press release. On the event day, the previous level of cost of capital is actually restored. Using a no-

growth implied cost of capital model, this financing cost is found to be 1.45% higher on average than the cost for trusts with constant payouts.

When estimating the implied cost of capital for distribution increases, three empirical models are considered: 1) no growth, 2) constant geometric growth adapted from the Gordon (1959) model, and 3) binomial probabilistic additive growth adapted from Hurley and Johnson (1994,1997). The event study demonstrates that both models with growth estimates overestimate the pricing effect associated with the distribution increase. The implied cost of capital rises significantly on the event day, based on the investors' response, and does not return to a stationary level observed in the nine months before. Thus the unit-holder is not rewarding the organization for the demonstrated growth in the distribution. The ability to increase distributions is rewarded, however, since the implied cost of capital in the no growth scenario is 2.13% lower for these firms than the cost for trusts with constant payouts. The result indicates a "bird-in-the-hand" behavioural response to the income trusts that are considered less risky, because the increases to distributions were demonstrated. This is a novel finding with respect to payouts to shareholders but would not be unexpected in a fixed income market. It seems that the nature of the income trust payouts may elicit such a response from their investing clientele.

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ASB 2010
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TIME-VARYING EQUITY INDEX AND BOND MARKET PREMIA IN CHINA

This study finds time-varying risk premia for Shanghai and Shenzhen composite indices and T-bills in China. We use Bollerslev, Engle, and Wooldridge's (1988) multivariate GARCH in mean to estimate the time-varying risk premium. Comparing to the findings in developed countries, our results show that Chinese investors are less risk averse. The equity index premium is quite volatile in the period from 2007 to 2009.

Introduction

The Chinese economy has grown rapidly in the past decade. Consequently, its equity value reflects the fundamental aspect and rises at a faster rate than that in developed countries. Attracted by the better investment opportunity, more and more investors (international as well as Chinese domestic) trade Chinese securities. Table 1 shows the growth of dollar trading volume and market capitalization for Shanghai and Shenzhen Stock Exchanges from April 2002 to March 2010. In this period, the monthly dollar trading volume for Shanghai and Shenzhen Stock Exchanges grew 1,314% and 1,445%, respectively. The market capitalization of Shanghai and Shenzhen Stock Exchanges also grew 512% and 305%, respectively.

Motivated by the increasingly important Chinese equity market, we examine the changes of the equity index and bond risk premia over time. Studies of Chinese equity investigate the cross-sectional variations of average returns (eg., Fung, Lee and Leung, 2000; Fernald and

Rogers, 2002; Chan, Menkveld, and Yang, 2008; Eun and Huang, 2007) across A and B shares. Domestic residents and selected foreign institutional investors are allowed to trade A shares. B shares are for foreigners, but also open to domestic residents since March 2001. Different from these studies, our study focuses on time-varying equity index and bond market premia in China. We investigate patterns between equity and bond markets. More importantly, this research contributes to the literature by measuring the degree of risk aversion in China. We use Bollerslev, Engle, and Wooldridge's (1988) model to estimate the degree of risk aversion.

Table 1 Growth of Dollar Trading Volume and Market Capitalization for Shanghai and Shenzhen Stock Exchanges

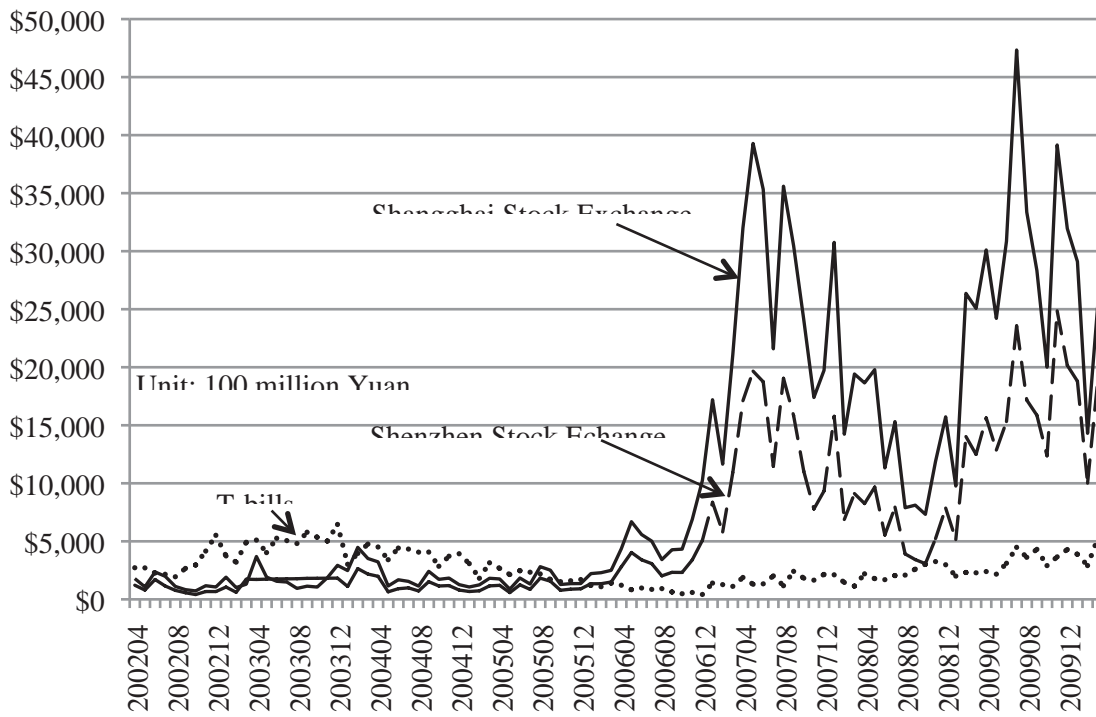
	Shanghai \$trading vol. (in Yuan)	Shenzhen \$trading vol. (in Yuan)	Shanghai Market Cap. (in Yuan)	Shenzhen Market Cap. (in Yuan)
April, 2002	178,868	121,799	2,934,033	1,612,189
March, 2010	2,529,433	1,882,059	17,957,857	6,537,401
Growth rate (%)	1,314	1,445	512	305
	(in US\$)	(in US\$)	(in US\$)	(in US\$)
April, 2002	21,643	14,738	355,018	195,075
March, 2010	371,068	276,098	2,634,418	959,037

Notes: To conserve space, we use abbreviations \$trading vol. for dollar trading volume, and market cap. for market capitalization. The unit is in millions. The local currency in China is Chinese Yuan. The values in local currency are converted to U.S. dollars based on the exchange rates .1210 and .1467 (\$USD/Chinese Yuan) on 4/30/2002 and 3/31/2010, respectively.

Figure 1 graphs the monthly dollar trading volume for Shanghai and Shenzhen Stock Exchanges and Chinese T-bills from April 2002 to March 2010. Although the dollar trading volume is volatile, it shows that the Chinese equity market becomes more liquid except for the period between April 2007 and October 2008. The dollar trading volume for Chinese T-bills somehow does not show signs of increase. The less liquid bond market is attributed to the monetary policy set by the Chinese central bank. Given these facts, it is interesting to know the changes of equity index and bond market premia over time. Does the risk premium respond to market shocks or fluctuations of macro-economy? What is the risk premium an investor demands for holding Chinese securities and T-bills? This paper tries to answer these questions.

The rest of the paper is organized as follows. Section two reviews literature of asset pricing models that estimate the time-varying risk premium and empirical evidence as well. Section three describes the data, and outlines the methodology and estimation procedures. Section four discusses results, while Section five concludes.

Figure 1 Dollar Trading Volume for Chinese Stock Exchanges and T-Bills Over Years



Literature Review

In this section, we review conditional capital asset pricing models, and empirical evidence in the U.S. and international equity markets. The Capital Asset Pricing Model (CAPM), developed by Sharpe (1964) and Lintner (1965), relates the expected return of individual security or portfolio to its systematic risk (beta). The static specification of the CAPM fails to account for cross-sectional variations of equity returns. Researchers then developed conditional versions of the CAPM, which consider the information set on each time point. The multifactor models, such as the Fama-French (1992, 1993) three factor model and Carhart's (1997) four factor model, are conditional asset pricing models.

Earlier studies (eg., Mankiw and Shapiro, 1986; Breeden, Gibbons, and Litzenberger, 1989; Campbell, 1996; Cochrane, 1996) test the consumption CAPM (CCAPM, developed by Breeden, 1979) but show no success in explaining the cross-sectional average equity returns. Using the log consumption-wealth ratio as the conditioning variable, Lettau and Ludvigson (2001) show that their model performs better than the unconditional CAPM. It does about as well as the Fama-French three-factor model.

Incorporating human capital in their conditional CAPM, Jagannathan and Wang (1996) show that their model explains 50% of the cross-sectional variations of average returns. Lewellen and Nagel (2006), however, argue that the evidence provided by Jagannathan and Wang (1996) and Lettau and Ludvigson (2001) results from cross-section regressions, not from time-series intercept tests. Lewellen and Nagel (2006), on the contrary, show that the conditional CAPM performs as poorly as the unconditional CAPM in book-to-market and momentum sorted portfolios. Adrian and Franzoi (2009) model a learning-augmented conditional CAPM. The pricing errors of their model are about the same as those of the Fama-French three-factor model.

The results from other studies of the conditional CAPM are mixed. Examining the German stock market, Schrimpf et al. (2007) find that unconditional models have higher predicting power than conditional ones. He et al. (1996), investigating the size and book-to-market sorted portfolios, find that firm size and book-to-market ratios can explain only a small portion of stock returns. Ng (2004) developed a dynamic version of international CAPM based on Solnik (1974) and Adler and Dumas (1983). His model does not perform better than the CAPM in explaining the cross section of returns in foreign exchange and stock markets in G4 countries (the U.S., Japan, Germany, and the U.K.) This is because the returns on G4 country portfolios are highly correlated with world market stock returns. Avramov and Chao (2006) use a Bayesian method to test the international CAPM in the U.S. and 12 major countries in Europe, Australia, and Far East. Their empirical evidence supports the conditional version of international CAPM.

As to the Chinese market, a few studies provide evidence of time-varying beta and risk premium in the segmentation of Chinese A and B share equity markets. For example, Jacobsen and Liu (2008) employ the international CAPM model, and find time-varying local and currency risk premia in the segmented markets. Forming portfolios based on the procedure of Fama-French (1992, 1993), Eun and Huang (2007) document firm size and value premium from time-varying cross-sectional evidence. Constructing a latent risk premium, Fung et al. (2000) find a weak correlation between the premia of A and B shares. This indicates the difference of pricing in the segmented markets.

Another line of research models the conditional CAPM by the generalized autoregressive conditional heteroskedasticity (GARCH) process. For original papers of ARCH and GARCH,

please refer to Engle (1982) and Bollerslev (1986). Bollerslev, Engle, and Wooldridge (1988) estimate the time-varying betas and risk premia by a tri-variate GARCH in mean model. The ARCH in mean (ARCH-M) was developed by Engle, Lilien, and Robins (1987). Later papers (Schwert and Seguin, 1990; Ng, 1991; Turtle et al., 1994; De Santis and Gerard, 1998; Hasnsson and Hordahl, 1998; Fraser et al, 2004; Jacobsen and Liu, 2008), employing multivariate GARCH process, all document time-varying risk premium in the U.S. or international regimes.

Data and Methodology

We obtained data from the People’s Bank of China (the central bank in China.) Its website provides monthly data for Shanghai and Shenzhen stock composite indices, bond yields, and the associated dollar trading volume from 2002 to 2010. More specifically, we obtained data for the Shanghai composite index and the Shenzhen (A and B shares) high and low composite indices. For bond market, the yields on 1-month, 3-month, and 6-month T-bills are included in our sample. We convert annual yields on T-bills to monthly rates. The monthly rate on the 1-month T-bills is used as proxy for the risk free rate. The excess returns on stock indices and T-bills are computed the same way as that in Bollerslev, Engle, and Wooldridge (1988).

To estimate time-varying premia for the stock index and bond market in China, we use Bollerslev, Engle, and Wooldridge’s (1988) multivariate GARCH in mean (GARCH-M) model. The multivariate GARCH(1,1)-M takes the following matrix form:

$$\begin{aligned} \Sigma_t &= \omega + \delta \Sigma_{t-1} + \alpha \epsilon_t \epsilon_t', \\ \text{vech}(\Sigma_t) &= \omega + \alpha \cdot \text{vech}(\Sigma_{t-1}) + \beta \cdot \text{vech}(\Sigma_{t-1}) - 1 \in \mathbb{R}^{2 \times 2} - 1' + \alpha \cdot \text{vech}(\Sigma_{t-1}) - 1, \\ \epsilon_t / \Sigma_t - 1 &\sim \mathcal{N}(0, \Sigma_t), \end{aligned} \tag{1}$$

where ϵ_t is a 2×1 vector for the excess return variables, ω is a 2×1 vector of constants, Σ_t denotes a 2×2 conditional variance matrix, Σ_{t-1} is the lag one-period 2×2 value weight vector, the α denotes a 2×1 vector of innovation terms, $\text{vech}(\cdot)$ is a stacking column operator of the lower triangle symmetric matrix, β is a $12 \cdot 2 \cdot (2+1) \times 1$ vector of constants, α and β are $12 \cdot 2 \cdot (2+1) \times 12 \cdot 2 \cdot (2+1)$ matrices, and Σ_{t-1} denotes the information set at t-1. We borrow the notations from Bollerslev et al. (1988).

The parsimonious multivariate GARCH (1, 1)-M process is chosen for simplification.

The conditional log likelihood function of equation 1 on each time t is:

$$\ln L_t = -\frac{1}{2} \ln |\Sigma_t| - \frac{1}{2} \epsilon_t' \Sigma_t^{-1} \epsilon_t - \frac{1}{2} \ln |\Sigma_{t-1}| - \frac{1}{2} \epsilon_{t-1}' \Sigma_{t-1}^{-1} \epsilon_{t-1} \tag{2}$$

where θ' is a vector which combines all the parameters in the model:

$$\theta' = (\omega', \alpha', \beta', \text{vec}(\Sigma_t)', \text{vec}(\Sigma_{t-1})')$$

Summing all the log likelihood function over the sample period ($t=1, 2, \dots, T$), we obtain

$$\sigma_{it}^2 = \omega + \alpha_1 \epsilon_{it}^2 + \beta_1 \sigma_{it-1}^2 \quad (3)$$

The log likelihood $\ln(L)$ can be estimated according to the procedure of Berndt et al. (1974).

The People's Bank of China provides the yields on different maturities of T-bills (up to one year of maturity only) on its website. It does not provide data for yields on long-term bonds. Lacking of the data for long-term bonds, we can only form the market portfolio which comprises a stock index and a Chinese T-bill. The value weight vector for the component security is computed based on the relative dollar trading volume to the aggregate market dollar trading volume.

The bivariate GARCH(1,1)-M model is:

$$\epsilon_{1t} = \omega_1 + \alpha_1 \epsilon_{1t-1}^2 + \beta_1 \sigma_{1t-1}^2 + \gamma_1 \epsilon_{2t-1} \epsilon_{1t-1}$$

(4a)

$$\begin{aligned} \sigma_{1t}^2 &= \omega_{11} + \alpha_{11} \epsilon_{1t-1}^2 + \beta_{11} \sigma_{1t-1}^2 + \alpha_{12} \epsilon_{2t-1}^2 + \beta_{12} \sigma_{2t-1}^2 + \gamma_{11} \epsilon_{1t-1} \epsilon_{2t-1} \\ \sigma_{2t}^2 &= \omega_{21} + \alpha_{21} \epsilon_{1t-1}^2 + \beta_{21} \sigma_{1t-1}^2 + \alpha_{22} \epsilon_{2t-1}^2 + \beta_{22} \sigma_{2t-1}^2 + \gamma_{21} \epsilon_{1t-1} \epsilon_{2t-1} \end{aligned} \quad (4b)$$

where ϵ_{1t} , and ϵ_{2t} are the excess returns for a stock index and a 3-month (or 6-month) T-bill, respectively. γ_{ij} is the lag one-period value weight vector associated with each excess return series. Equation 4b is a system of conditional variance equations for these two excess return series.

It is worth noting that the parameter, γ (in equation 4a), is restricted to be the same across the stock index and the T-bill. It allows us to measure the degree of risk aversion from investing in Chinese stock and bond markets.

Before estimating equations 4a and 4b, we take the standard approach to check the ARCH effect for each of the excess returns, ϵ_{1t} , and ϵ_{2t} . Engle's (1982) LM test is conducted.

$$\sum_{j=1}^2 \epsilon_{jt}^2 = \omega + \alpha_1 \epsilon_{1t-1}^2 + \alpha_2 \epsilon_{2t-1}^2 \quad (5)$$

where $j=1$, and 2 , refers to the stock index, and the 3-month (or 6-month) T-bill, respectively. ϵ_{jt}^2 denotes the squares of fitted errors in the ARMA process of ϵ_{1t} , and ϵ_{2t} , respectively.

We then put the qualified candidates for stock indices, and the 3-month (or 6-month) T-bill in the system of equations (eq. 4a and 4b) for estimation.

Discussions of Results

The descriptive statistics for excess returns on various stock indices, 3-month, and 6-month T-bills are reported in Table 2.

Table 2 Descriptive Statistics for Excess Returns on Chinese Stock Indices and T-bills

	Min.	Max.	Mean	Std. Dev.	Skewness	Kurtosis
Shanghai CI	-24.8910	27.2356	.9191	9.1819	-.3087	.8507
Shenzhen HCI A	-22.8743	28.6294	1.1324	8.9453	0.4864	1.5172
Shenzhen HCI B	-19.4756	29.3329	1.1843	9.1040	0.6527	0.8461
Shenzhen LCI A	-26.2422	28.8738	1.2467	9.2830	0.1126	0.6891
Shenzhen LCI B	-25.4451	26.1454	1.2864	9.0391	-0.2294	0.8431
3-month T-bills	-0.2760	0.2109	0.0363	0.0741	-0.3861	3.7062
6-month T-bills	-0.3819	0.2625	0.0539	0.1056	-1.2144	4.2440

Notes: The monthly excess returns are in percentage. Our sample period is from 2002:04 to 2010:03, 96 observations in total. Shanghai and Shenzhen are for Shanghai and Shenzhen Stock Exchanges. CI stands for a composite index. HCI and LCI denote high and low composite index, respectively. HCI A(B) denotes for A (B) share high composite index, while LCI A (B) denotes A (B) share low composite index.

The mean excess returns for stock indices and T-bills are close to zero. The highest is 1.29% for Shenzhen B share low composite index, and the lowest is .036% for 3-month T-bills. Among these stock indices, Shenzhen A share low composite index is the most volatile. The maximum monthly excess return ranges between 26.14% and 29.33%. It is lowest at -26.89% for the Shanghai composite index. The excess returns on T-bills are less volatile, ranging between -.38% and .26%. The distribution of excess returns for stock indices and T-bills is slightly skewed. It is not normally distributed, and the values of Kurtosis vary across different categories.

Table 3 reports the statistics based on Engle's (1982) LM test for these excess return series.

Table 3 LM Test Statistics for Excess Returns on Chinese Stock Indices and T-bills

Shanghai Stock Exchange	
CI	
P-value	0.045

Shenzhen Stock Exchange				
	HCI A	HCI B	LCI A	LCI B
P-value	0.5038	0.4297	0.0065	0.1920

	3-month T-bills	6-month T-bills
P-value	0.0161	0.0049

Notes: CI denotes a composite index, respectively. HCI A(B) denotes A (B) share high composite index, while LCI A (B) stands for A (B) share low composite index. Engle's (1982) LM test statistics are computed from this equation: $\sum_{t=1}^n \hat{\epsilon}_t^2 = \alpha_0 + \alpha_1 \sum_{t=1}^n \hat{\epsilon}_t^2 - 12$, where $\hat{\epsilon}_t^2$ denotes the squares of fitted errors in the ARMA process of excess returns on a stock index or 3-month (or 6-month) T-bills. The statistics in bold shaded gray are significant at 5% level, while those shaded gray in bold italic are significant at 1% level.

Two series of excess returns for stock indices exhibit ARCH effects. The Shanghai composite index is significant at 5% level, while the Shenzhen A share low composite index is significant at 1% level. The excess returns for 3-month and 6-month T-bills are significant at 5% and 1%, respectively. We then use these qualified candidates to form a market portfolio which comprises a stock index and a T-bill.

Table 4 reports estimates of the bivariate GARCH (1,1)-M (equations 4a and 4b) for four different market portfolios. Portfolio 1 comprises the Shanghai composite index and a 3-month T-bill. Portfolio 2 includes the Shanghai composite index and a 6-month T-bill. Portfolio 3 consists of the Shenzhen A share low composite index and a 3-month T-bill. Portfolio 4 comprises the Shenzhen A share low composite index and a 6-month T-bill. The estimate of the slope coefficient, β , in the mean equation for Portfolio 1 is .018 and significant at 1% level. It is not significant at 5% level for Portfolio 2. The estimates of β in the mean equations are 0.0238 and 0.0118 for portfolios 3 and 4, respectively. They are significant at 1% level. However, they are small in value, close to zero. The small value of β implies that investors are less risk averse, almost risk neutral. It is probably because of few investment alternatives available in China. Domestic residents care about expected returns of their investments, and are indifferent to the risk incurred. It is interesting to examine whether there exhibits similar characteristics in other countries, such as Russia, and east European countries.

Table 4 Statistics for the Bivariate GARCH (1,1)-Mean by Four Different Market Portfolios

	Port. 1	Port. 2	Port. 3	Port. 4	Port. 1	Port. 2	Port. 3	Port. 4
	Est.	Est.	Est.	Est.	P-value	P-value	P-value	P-value
β_1	-1.0616	1.0786	-1.0186	0.9475	0.0000	0.0000	0.0000	0.0000
β_2	0.0168	0.0558	0.0412	0.0647	0.0000	0.0000	0.0000	0.0000
β	0.0180	0.0014	0.0238	0.0118	0.0000	0.8090	0.0013	0.0000
α_{11}	69.5407	87.4025	74.6057	26.8343	0.0000	0.0000	0.0000	0.0000
α_{12}	-0.0429	-0.0187	-0.3103	-0.0855	0.0000	0.0000	0.0000	0.0000
α_{22}	0.0013	0.0036	0.0032	0.0048	0.0000	0.0000	0.0000	0.0000
α_{11}	0.0986	-0.0957	0.0012	0.1774	0.0000	0.0000	0.9314	0.0000
α_{12}	-0.0902	-0.1881	-0.3760	-0.0368	0.0000	0.0000	0.0000	0.0000
α_{22}	0.7792	1.1655	0.0503	-0.0322	0.0000	0.0000	0.0001	0.0000
α_{11}	0.1160	0.0430	0.1273	0.4307	0.0000	0.0000	0.0000	0.0000
α_{12}	-0.4551	0.1132	0.0343	0.4706	0.0000	0.0000	0.0023	0.0000
α_{22}	0.0230	-0.0135	0.1220	0.7900	0.0000	0.0000	0.0000	0.0000

Notes: Est. is the abbreviation for estimate. Port.1-4 denote Portfolios 1-4. Portfolio 1 comprises the Shanghai composite index and a 3-month T-bill. Portfolio 2 includes the Shanghai composite index and a 6-month T-bill. Portfolio 3 consists of the Shenzhen A share low composite index and a 3-month T-bill. Portfolio 4 comprises the Shenzhen A share low composite index and a 6-month T-bill.

The beta estimates, β_{11} , β_{12} , and β_{22} , on the autoregressive terms in the conditional variance equations range between -.037 and 1.1655. The alpha estimates, α_{11} , α_{12} , and α_{22} , on the moving average terms in the conditional variance equations range between -.4551 and .79. Except one estimate, α_{11} , on the square of innovation term, all other estimates in the conditional variance equations are significant at 1% level. This indicates that including one lag of the moving average and conditional variance (or covariance) terms models the process of conditional variances of returns well. Almost every estimate is significant at 5% level in the mean and conditional variance equations. The bivariate GARCH (1,1)-M seems to be a good specification to model the conditional volatility of Chinese equity index and bond markets.

Figures 2A and 2B show the time-varying risk premia for the Shenzhen A share low composite index and the 3-month Chinese T-bill. We find similar results for market portfolio 1, which comprises the Shanghai composite index and a 3-month Chinese T-bill, and for market portfolio 4, comprising the Shenzhen A share low composite index and 6-month Chinese T-bills. To conserve space, we do not show graphs for these two portfolios. The risk premium for the Shenzhen A share low composite index hovers around 1.2% per month between May 2002 and December 2006. Starting from January 2007, it rose dramatically from 2% to 9.72% in June

2007. The driving force of this run is its economic growth rate, 11% annual rate, in the first quarter of 2007. Domestic investors pulled money from bank accounts, plunging it into the stock market. To ease the overheated economy, the Chinese government raised interest rates and tripled trading tax. The equity index premium then went down to 1.7% in January 2008. It rose to 5-6% in the first half of 2008. In September 2008, the massive sell off securities drove up the expected return to 7.67%. The risk premium declined afterwards in recession. The economy showed signs of recovery in 2009. Thus, the risk premium bounced back a couple times to 3.8% in January and May 2009. However, the growth of global economy remained weak. The risk premium slowly declined to 1% in March 2010, similar to that in January 2007.

The risk premium for 3-month T-bills is very small in value. In most of the periods, the risk premium is less than .0000005% per month. There are two big spikes in the graph. The rise of risk premium of Chinese T-bills is primarily driven by demand. The People’s Bank of China (the central bank in China) also determines money supply. Banks purchased more T-bills after

Figure 2A Time-varying Risk Premium for Shenzhen A Share Low Composite Index

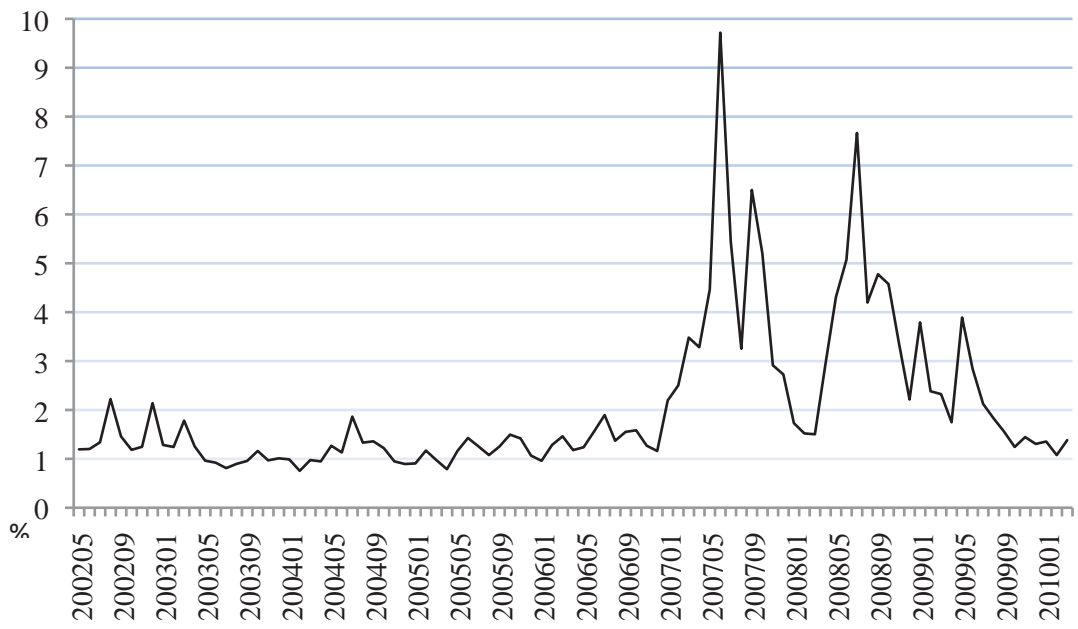
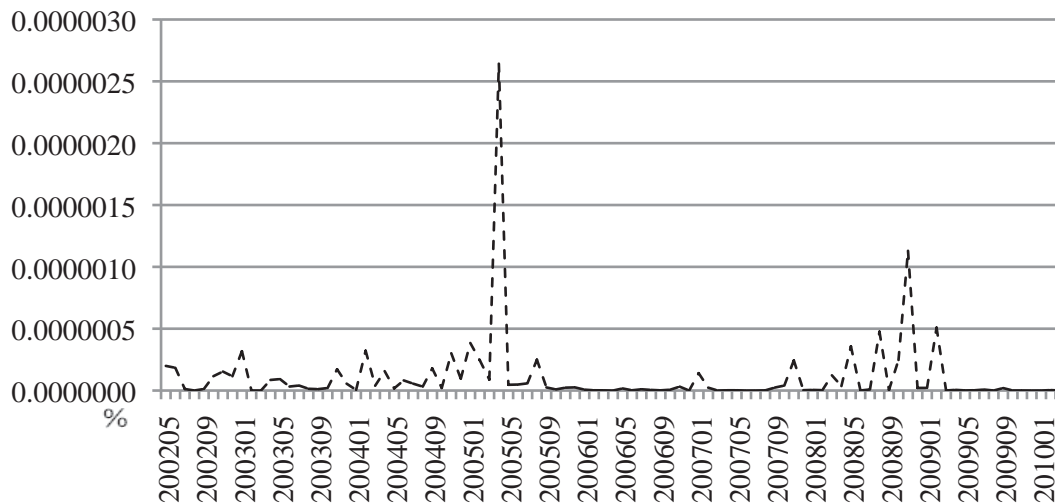


Figure 2B Time-varying Risk Premium for 3-Month Chinese T-bills



the liquidity shock in September 2008. This drove up the T-bill risk premium. There was no major financial news announced for Chinese T-bills in April 2005. The rise of expected returns on T-bills in April 2005 is probably caused by demand as well.

Conclusions

This paper investigates the time-varying risk premia for equity index and bond markets in China. We employ a bivariate GARCH-M model to estimate the risk premium. The results show that the risk premium for the Shenzhen A share low composite index ranges between .9% and 9.72% per month. The risk premium for the Shanghai composite index is also similar in value as that for the Shenzhen A share low composite index. The risk premium for 3-month (and 6-month) Chinese T-bills is small in value, close to zero. It does not change much for most of the time periods. The time variation of risk premium for the Shanghai composite and the Shenzhen A share low composite indices is consistent with different phases of business cycle. It responds to market shocks and fluctuations of macro-economy.

This study also finds that investors are less risk averse, almost risk neutral, in China. This is probably because of fewer investment opportunities available in China. Investors are indifferent to the risk incurred. It is interesting to see whether there exhibits similar characteristics in other developing countries. This is left for future research.

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Gender & Diversity - Genre & Diversité

ASB 2010
Halifax, Nova Scotia

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WRITTEN NARRATIVES OF FOUR WOMEN MANAGERS IN MEXICO: GENDERED MANAGERIAL IDENTITIES

Written narratives are useful devices for studying the process of identity construction. We analyzed the discursive constructions of four women managers in Mexico, in three business magazines. Strategies of fixing the women and valuing the feminine were enacted, as well as managerial and diversity discourses. These accounts are also co-produced between the magazines' editors, the women and the audience.

Family, Machismo, Marianismo and Women Managers in Mexico

Historical and cultural aspects of the formation of Mexican society have relevant implications for the sense of self of individuals. Family, including the extended family, has been a very important institution in society. After the conquest by the Spaniards more than 400 years ago, Mexico became a Catholic country, in which family "devotion" and traditions were dominant values (Stevens 1973). Scholars refer to two main discourses linked to gender roles of the family discourse. The first one is the Mexican *machismo* (Gutmann 2007). Forty years ago, Paz (1961) asserted that the Spaniards' conquest over indigenous men and women marked the Mexican culture. A form of masculinity that has been reproduced since the conquest, characterized by men's domination of their own wives and the conquest of other women (Pablos 1999). Machismo is viewed as a symbol of strength, self-confidence, manhood and it is embedded within other values such as responsibility towards the family, family status quo and harmony, obedience, fear of authority, unity, and virginity (Diaz-Guerrero 1975). Nonetheless, machismo has been understood and defined in a variety of contradictory ways (Gutmann 2007). While it has been seen as a global phenomenon (e.g. Hearn 2004), machismo has been associated with Latin American Culture in particular (Stobbe 2005; Gutmann 2007), and specifically as a symbol of the Mexican National identity. Machismo, as a form of discourse, has enacted several

images of masculinity through speech acts (Stobbe 2005), where there is some 'consensus between men and women on the dominant ideal of manhood (machismo)' (p. 111).

On the other side of the machismo discourse, is Marianismo, a term that constructs an ideal template for womanhood, which is contrary to machismo in Latin culture (Stevens 1973). It is described as an identification of women with the Virgin Maria, which is a very important aspect of the Mexican Catholicism (Stevens 1973). The Marianismo discourse portrays the image of the submissive and saintly woman devoted to her family, as an ideal for other women. These gender practices and discourses were embedded within the development of National Identity following the Revolution of 1910. Women were not allowed to vote for fear of their alliances with the Catholic Church, which was seen as an enemy of the ideals of the revolution (Craske 2005). Also women were considered to 'belong to the domestic arena and did not possess a suitably developed political consciousness' (Craske 2005: 121). Similarly, women were excluded from holding public offices. However, they won paid maternity leave and some related benefits. In other words, while some basic citizen rights were withheld, maternity was promoted. Women were also officially excluded from working on traditional men's jobs until 1974 (Fernandez-Poncela 1995), when an amendment to the Constitution promulgated equal opportunities for women and men. In summary, this historical period has made machismo a very popular term, even as self-description of some men: "I am a Mexican macho"; while Marianismo, as other women's silenced voices, has not been uttered but practiced. Nevertheless, both machismo and marianismo are traditional cultural forms or discourses of feminine and masculine ideals of identity and behavior (Sequeira 1973). The family, as an important cultural institution and discourse, is strengthened by machismo and marianismo discourses in contemporary Mexico. Some families still have an expectation of male dominance where the supremacy of the father is unquestioned and as well as the self-sacrifice of the mother (Pablos 1999).

The globalized era, as well as Mexican modernity, is bringing new economical, political and societal discourses offering new subject positions for men and women. Some discourses are emerging from recently created human rights and equal opportunities laws. At the organizational level, it has been argued that transnational corporations have brought equity programs and practices for the development of women at work and that some local companies have adopted them (Zabludovsky 2001). However, the gender neutrality of the globalization discourse has been contested (Acker 2004). Commentators from the developing world have noted that organizations offer managerial discourses that favor men and the masculine over the women and the feminine (Mumby and Putnam 1992). Going further, the globalization phenomenon seems to be exporting some of these gender discourses and practices from the North to Latin America (Calás and Smircich 1993). Hence, these patriarchal structures and discourses are the ones that replace former gendered discourses in Mexico (i.e. Machismo, Marianismo, Nationalism). Certainly, the incorporation of Mexico in NAFTA, has increased women participation into the Mexican labor force ((FLASCO) 1993) and into managerial positions (Zabludovsky 2001). Notwithstanding, by 2007 just 1% of the working women in Mexico had the highest managerial position and just 3% had a top managerial position (Delaunay 2007).

In this paper, we study women's managerial identity through written narratives of the self (Gherardi 1996; Linstead and Thomas 2002). We focus on the accounts of four women managers co-produced in three Mexican magazines. The first section offers a theoretical review on women's managerial identity. The second section discusses the method of analysis. Section

three contains the analysis of the four narratives, including a contextual reading in each magazine. Finally, we offer some conclusions.

Women's Managerial Identity

Psychologists have seen identity as something stable and fixed (Potter and Wetherell 1987). Complementary to this view, social identity theory (see Tajfel and Turner 1979) argues that individuals see themselves as part of a social group and compare with others who are not part of that group. For example, biological sex has been used to attribute characteristics to each of these groups, assuming essentialist identities and behaviors (West and Zimmerman 1987). However, the essentialist view of identity, including gender identity, has been contested. Feminist scholars have made the distinction between sex and gender. While biological sex is determined by reproductive organs, '[g]ender, in contrast, refers to a classification that societies construct to exaggerate the differences between females and males and to maintain sex inequality' (Reskin and Padavic 1994). This process of constructing differences occurs through gender practices such as accepted forms of language and expressions (West and Zimmerman 1987), among other forms. In this vein, practicing gender refers to 'literary saying or doing gender' (Martin 2006: 258), which has implication for gender identity. In a Foucauldian sense (1977), identity is considered as a discursive construction. Therefore, it is through language that identities are produced and reproduced (Fairclough 1992). This process has been called 'identity work': the events, processes and struggles to create a sense of self (Sveningsson and Alvesson 2003). According to this, identity is not longer treated as an essential collection of unique traits of an individual. Rather, it is conceptualized as a social construction and a relational concept (Kärreman and Alvesson 2001) characterized by asymmetries of power. Having said that, we need to consider issues of power and control, which affect subjectivity (Foucault 1977). Similarly, men and women when constructing their identities, they are to some degree objects and subjects of external social conditions (Kanter 1977). Consequently, gender identities are constructed by what Acker (1992: 250) 'refers to [as] patterned, socially produced, distinctions between female and male, feminine and masculine'. Going further, 'doing' or 'saying' gender', as socially constructed distinctions, are reproduced within organizations and institutions.

Consequently, (managerial) identity work is constructed within organizations, where organizational culture, as the enactment of organizational rules, have 'implications for the construction and reproduction of gendered relationships' (Mills 1988: 366) and self-images. Some of these rules marginalize the 'feminine' and favor the 'masculine' (Ferguson 1984; Mumby and Putnam 1992). For instance, Kanter (1977) argues that gender differences are the consequences of organizational structures rather than women's and men's characteristics. Similarly, Ferguson (1984) notes that the traditional bureaucratic organization is gendered due to its male domination. Consequently, gendered structures and gendered divisions of labor 'produce gendered components of individual identity' (Acker 1990: 147). When women involve in managerial 'identity work', gendered perceptions of identity shape the construction of their identity and work 'normalizing' their own behavior (Foucault 1977). For instance, women who were incorporated in the labor force, as well as managers, they were advised to practice 'gender management' (Trethewey 1999) for controlling the way they look and behave. In doing so, women adopt the image of the 'ideal worker' which marginalize them because that means 'to

become like a man' (Acker 1990: 150). In this vein, Angela Trethewey calls for understanding 'how diverse women experience and embodied their identities' (p. 447).

Written Narratives and Identity

This study takes into account the narrative 'turn' which 'self-consciously opposed a social science thought to be excessively analytic' with causal relations between 'reified constructs' (Abbott 2007: 69). This has been the case of traditional career theory, including managerial careers. However, the dominant 'dispositional discourse' of career theory has been challenged, inviting researchers to consider less essentialist views, with a more constructivist focus (Young and Collin 2004). This focus is especially important for the construction of women's careers. Accordingly, 'the linguistic turn' (Alvesson and Karreman 2000) within the organizational studies field, noted the importance of using narratives and story-based research as a new and legitimate way to produce knowledge (Boje 1991; Czarniawska 1997; Gabriel 2000). Anthony Giddens (1991) challenges the taken-for-granted assumptions that identity is given and he points out that one way to define this process of constructing our own identity is that 'it is the self as reflexively understood by the person in terms of her or his biography' (p.53) and the process requires from us to 'keep a particular narrative going' (p.54). In addition, the process of narrating is not only '[a way] of representing but of constituting reality' (Bruner 1991, p.5). The use of interviews, for the enactment of narratives, has been extensively adopted to study the discursive construction of gendered identities (e.g. Ashcraft and Mumby 2004). Nonetheless, the use of written narratives, such as the use of autobiographies and life stories, is considered well fitted for identity work (Czarniawska and Gagliardi 2003). In the present study, we use written narratives of women managers in Mexico collected in magazines, noting that the use of written managerial narratives is still underdeveloped (McKenna 2010).

Business Magazines

Business magazines have influence on managers' identities (Watson and Bargiela-Ciappini 1998), because of the simplicity and accessibility in terms of style and the use of images and pictures. Watson and Bargiela-Ciappini (1998) suggest that management magazines are discursive resources that managers can draw upon to make sense of their roles. Recently, it seems that business magazines are taking the gender equity discourse more seriously than in the past. It is not strange to find covers of business magazines that advertise successful stories of women managers who broke the glass ceiling in North America. However, business magazines may offer specific gender identities. For example, an analysis of the imagery and titles that appeared through the whole year on the covers of one Canadian and one Mexican business magazines reveals that they contain gendered identity cues favoring men (Barragan, MacAulay et al. 2010). In this vein, the analysis of narratives of successful women in managerial positions, contained in business magazines, offers four possibilities: First, the opportunity to have a window into the fragmented discursive identities of these managers. Second, the contextualization of these enacted identities in a country offers the possibility to unveil some societal and organizational discursive practices that construct specific localized identities. Third, understanding how the women managers assume or resist these available subjective positions (Linstead and Thomas 2002). Finally, these written narratives can be analyzed not only within the country context, but also within the role that each business magazine plays in the portrayal of women managers.

Method

Collection of Narratives

We began with a search for magazines with different orientations in terms of ideology and audiences. The common theme was that they have to be read by middle to top managers. Second, we searched for written narratives of successful stories of women managers. We purposively chose four narratives in three different magazines that were a clear showpiece of these successful cases. Three magazines were selected: *Magazine Milenio*, *MUJER EJECUTIVA*, and *REVISTA ISTMO*. We extracted one narrative from the first two magazines and two from the third one. The purpose of the selection was not to make generalizations of top managers, organizations or magazines, but to make an argument in relation to the theoretical framework explained above. More details of each magazine are provided further in the analysis.

Analysis of Narratives and Discourse Analysis

The analysis involves three steps: First, each of these narratives is analyzed individually using discourse analysis (Fairclough 1992) in order to reveal some of the discursive practices on which these women draw to evoke their narratives. The rationale is that '[d]iscourse analysis provides a range of ways' to study 'the complexity of processes of construction of identity' (Ainsworth & Hardy, 2004, p.155). Consequently, we try to uncover some inconsistencies to unveil how different discourses are interlocked and how these women managers adopt subjective positions offered to them either by Mexican society and/or the organizational context in which they are located. In the words of Weedon (1987): 'the individual assumes that she is the author of the ideology or discourse which she is speaking' (p.31). On the other side of the coin, it is possible that these managers also develop identity work from 'discursive forms of resistance, i.e. resistance at the level of identities and meanings' (Thomas, Mills et al. 2004, p.2). Second, we contrast the emergent discourses in order to understand how the construction of masculine and feminine attributes is attached to women and men managers as well as their managerial careers. Finally, we briefly provide our feminist interpretive reading of each of these accounts by positioning them into the ideology and audience of each magazine. Although this study is not using critical hermeneutics we still recognize that 'texts' (i.e. written narratives) are formulated within specific contexts and by particular authors (i.e. the interviewer and the magazine's editor) (Prasad 2002). In this sense, what was published on these magazines have already a process of selection of interviewees, formulation of particular questions, and selection and editing. For it, we assume that the interviews of life stories may work as delivering a 'press release' (Wiersma 1988). Therefore, we contextualize the narratives in each magazine by offering our own reading, hopefully a plausible narrative (Czarniawska and Gagliardi 2003).

FOUR NARRATIVES OF WOMEN MANAGERS IN MEXICO

Women Should Work under the Same Conditions of Men

(Interview with General Manager of SEPOMEX: In Carpinteyro 2008)

Purificacion Carpinteiro is the first woman to lead SEPOMEX -- a state-owned, but decentralized agency that competes with the private industry, where foreign capital owns some of the competitors. It is composed of 11,000 postal workers, of which 100 are women. Both men and women ride a 60-kg motorbike to deliver the mail. Carpinteiro has worked in the telecommunication industry for more than 15 years, including multinational companies. Purificacion started her narrative by contextualizing the performance of women in a traditional culture. In an implicit way, she is talking about Mexico and its traditional values that may not favour the success of a woman at work. After introducing this context, she talks explicitly about 'equal conditions' and implicitly to 'equal rights' between men and women, favoring the former discourse:

The performance of women in the work's sphere is still marked by a traditional culture. However, if we want equal rights, we have to be determined to perform under equal conditions. For instance, if a woman is hired as a post(wo)man, when she receives a motorbike, she may say 'not for me, because it is too heavy'. In this case, if the woman is afraid of having "broken nails", definitively she is not the right fit for that position.

Therefore, in this male-dominated industry, she makes it clear that this position is not compatible with "feminine" attributes by using this metaphor of having a good manicure. The expression of having "broken nails", evokes that someone is too fragile by taking good care of her nails. Men use this expression in a pejorative sense to degrade another man who may not be macho enough. In this sense, she is adopting a masculine form of speech. Therefore, she is constructing women as less ideal to fit this position by fixing the level of strength as higher for men than for women. The discourse of 'equal rights' is equated to allowing women not to ride a motorbike, if they don't want. She prefers to enact the discourse of 'equal conditions' for men and women, which is equated to being able to handle a motorbike. She resolves the dilemma opting for the latter, adopting a 'managerial' and 'market discourses' (Linstead and Thomas 2002):

Sepomex is an organization that requires an intensive labor hand and for that, it cannot permit itself the luxury of giving special conditions to any worker either a woman or a man. If [Sepomex] would do that, it will increase the operative cost of the organization, which in fact has to compete with the private industry, and we do not have the capabilities to do it in equal conditions...

Her adoption of this discourse might be something related to her previous background in the private telecommunication industry, which is about the bottom line. She positions Sepomex as part of the competitive market, rather than a provider of public services. Therefore, if public organizations are disadvantaged when competing with private corporations, as women are in a male world, the only solution is to fix the public organizations as one would 'fix' the women. It seems that in her view, women should behave as men to fit in this organization. She also constructs the ideal (masculine) worker in the male-dominated organization that she's leading by distinguishing the successful stories, among the few women, who follow this personification of the ideal worker:

In Sepomex there are 100 women, who ride 60-kg motorbikes, amongst you can find stories of competitiveness, strength, and high performance.

In some ways, this personification is characterized by masculine attributes of a strong man, the one who can ride a motorbike, who is competitive and oriented to high performance. Similarly, she identifies herself with the total-committed-always-available man to compete in a world dominated by men:

I am not the best example of making compatible a personal with a professional life. One of my decisions was to focus all my energies and efforts to my professional development and not to have a family. It was because in order to really compete in a world dominated by men, it was necessary to have a total availability of 24 hours and 7 days a week.

By positioning herself as ‘a traveller in a male world’ (Gherardi 1996), she justifies her decision to quit family life. She adopted the personification of the ‘disembodied worker’ (Acker 1990) who is committed to work and be detached from family responsibilities. She continues providing some perspective to her career as a manager:

During the early stages of my professional career, being a woman put me in a group of people who did not see the woman as an effective alternative. In spite of the years that had passed since then, in Mexico [those aspects] have not been eradicated. There are prejudices in regards to how women achieve top executive positions. There is a tendency to attribute those achievements to other factors, but women’s capabilities. When a man is assigned to a top position, it is assumed his competency, while in the case of a woman it is attributed to any other reason, especially if she is pretty or attractive. Sometimes, the physical attributes that a woman may have can be an obstacle to her professional development rather than an asset.

Retrospectively, she recounts how women were excluded from leadership positions. She also evokes the suspicions that men may have had on woman’s capabilities when promoted, especially if they were pretty. She constructs some feminine characteristics such as beauty and attractiveness as obstacles for a woman’s career, while for men, according to a popular Mexican saying, the good qualities of a man are to be “ugly, strong, and formal”. Finally, she recognizes the “surprise factor” of being a female and being able to be strong and make decisions:

Yet, being a woman has the advantage of the “surprise factor”. Especially in front of those who think that belonging to the feminine gender means that they do not have neither the strong hand nor the capacity to make decisions. I know that those women who are taking managerial positions, we have the responsibility with the women of Today and those who will come, to show that we can compete strongly.

Then, she constructs that men see these forms of ‘masculinity’ and ‘rationality’ associated with men (Mumby and Putnam 1992), but in her view, they are not an exclusive

property of them. On the contrary, she considers that women have to acquire them to succeed in a male world. Her identity is drawn on several discourses that construct the ideal manager. She can compete with men, even sacrificing her personal life. At the same time, she reproduces those discourses by constructing the ideal postman worker. In summary, women have to compete under the same conditions as men by being-like men.

... Women Need to Be More Audacious and Aggressive ...

(Interview with the Corporate Communications Manager of HP Mexico: In Pacheco 2009).

Maria Teresa leads the Corporate Communications Division of Hewlett-Packard Mexico (HP), a foreign-owned IT corporation that initiated operations in Mexico in 1966. Maria Teresa has an experience of 32 years in this industry and has worked 27 years for HP. She has been in strategic and operative areas and currently she is in charge of the marketing plans to focus on the federal and state governments. She was also the President of the National Chamber of this industry in Mexico. She is highly identified with HP, when linking her contribution to the advancement of the company as something valuable, which is part not only of her professional, but her personal identity:

I have been in this corporative for so long because HP has allowed me to be into different positions, create and generate new things and to put on the table my talent, experience, knowledge...and this is a formula to feel satisfied and happy, because you know that you are contributing to the advancement of the organization. It is a privileged to have found, for my personal development, a company like HP.

She constructs herself as a negotiator, which is the essence of her position. This identification with her position and her skills are reaffirmed when she evokes being with powerful actors in the government and in the industry. For her, this is a passion:

I consider myself as a good negotiator, that's the essence of this external position. You have to be negotiating all the time...I have had to be on the table to negotiate with the industry and the government issues of public politics...This is the role that I had to play... Continuing working on this is a passion for me until I am told: 'Tere, you have to go'. I see myself active in many forums of the industry, especially in social responsibility that I like it a lot. I will also look for some "my" time as well as time for my family and grandchildren. Let's see how much longer HP wants me with them.

In her narrative she foresees that she may not be an asset for the company and time is ticking. She is planning to continue in the industry taking more social roles. After 27 years with HP, her identity is still an ongoing process, in which she is not only asking herself who am I? but also what does the company want from me and until when? And what do I want to do in the future? Similar tensions has been documented elsewhere (Linstead and Thomas 2002). She is also planning on spending more time with her family, maybe not a priority for her managerial identity. She continues retrospectively and reflexively reviewing her personal roles at the light of her career:

I feel me satisfied with my roles. I am in peace with myself, as a daughter, sister, mother, friend, and mother in law. The only role I wasn't able to fulfill with success was as a partner [in a personal relationship]. I was married twice, but certainly, I didn't give enough in some areas and I gave too much in others. It was a difficult and complex role. I think this is the most challenging thing for successful women on businesses... children are tolerant, but with your partner, if you don't have that understanding from your partner, it's hard to make it work. I left this aspect unsolved and I assume it. Having a partner y keep him for life, when thing are fine, is like a crowning.

The assessment of her reflection is mixed, peaceful but there are some regrets of not performing the role of personal partner successfully. She considered her children more comprehensive than her two husbands with her career. Maria Teresa regrets not to have a long-term marriage that works for her, by using this metaphor of 'like a crowning' to idealize a personal relationship for life. However, she states that women have abandoned their careers for two reasons: her private life and companies' lack of disposition to balance the work-family conflict:

Women need to be more audacious and aggressive. At the other end, companies need to take some risks and say: 'ok, I'll bet on her'...We have advanced a lot in the middle levels and divisional managerial positions, but there are just a few top managers. Few women dare to dream with this position, it seems that they say 'that is too much'; we have to overcome this, and to propose ourselves 'why not?'

However, she attributes the main obstacles to women's advancement to the women in first place rather than to the companies. Similar to Purificacion, she is not like these women who have to sacrifice their careers for a personal life:

It is needed to have both an ambition and a vision to do a career. We prepare for it, but there is a lack the self-assurance to get to the highest levels. I have witnessed the desertion of women whose careers are in full ascendance, but when the times in which marriage and pregnancy arrive, and sometimes the lack of companies' disposition; then, these women never returned to their profession. Those of us, who stay and have achieved the top positions, have the obligation to be a role model and to help those who come behind.

Implicitly, she constructs men as the 'organization man', but more explicitly the 'organization as a super-person' (Czarniawska 1997: 41), who may ask her to live or may not have a good disposition toward women with families. She constructs organizations as risk averse, when considering the career of a woman. The risk is similar to "a bet" and not to a calculated risk. She constructs women without audacity and aggressiveness, assumed masculine qualities necessary, in her view, to succeed. Interesting to note is that it is the women and the organizations, but not the men who play a role in propagating this inequality for women's careers. Therefore, unless women become more committed to career, when the private life is present, they will be a bet rather than a calculated risk. She assumes a managerial discourse, when looking at issues of equality. To some degree, the private life has to be sacrificed at some

point to make a career. Similar to Purificacion, she sees herself as a role model for other women. She also recognizes that organizations are changing in terms of diversity issues. Especially, she emphasizes the economic role that women play in terms of purchasing power. Then, they have to be incorporated into the organization:

There is still too much to do ... but organizations [in Mexico] are aware of the diversity. Today, women take an important role from the economic point of view and for that it is important to include them to the organizations. In this way, from the inside, they can analyze what products they want from the outside, now that they have purchasing power.

Consequently, a managerial and diversity discourses come into play when considering the careers of women, rather than in terms of the equal opportunity discourse.

... Women Know Better How to Attend the Needs of the Clients...

(Interview with the Founder and Business Unit Director of PRAXIS: In Garcia 2007: 34)

Adriana is the founder and business unit manager of Praxis, a recognized consulting firm in information systems. It was one of the 60 best companies to work for in 2007 in Mexico. Adriana introduces her narrative by positioning her identity as owner and her identification with the feminine by pushing its development. She constructs an essentialist nature of women, which is better gifted to multi-task and to take care of the needs of the clients:

My company is composed of 8 managers, of which 5 of us are women. I have pushed too much the feminine development because I consider that we have the capacity, by nature, to attend more than one activity at the time. And this is fundamental in an organization focused on services. This has been an influence for Praxis to have the majority of the positions with responsibility occupied by women... my experience is that women know better how to attend the needs of the clients.

In her account, she defines the quality of the service as strategic for her business and tied to the feminine side of the women. Therefore, she values the feminine for instrumental reasons. Later, implicitly, she assumes that for these feminine qualities, women won't have obstacles for performing adequately:

In the service industry, it is easier to determine who keeps a position, the one who produces better results. In this context, I don't see obstacles [for women]...

On the other hand, she constructs the obstacles for women at work in relation to two aspects related to asymmetries of power in favor of men. The first one, sexual harassment:

I see [obstacles] with the problem of sexual harassment. Men in positions of power can turn a personal issue into a professional one. And for women, without decision-making power, it becomes a complex issue...It is difficult that a woman confronts this problem due to fear of being misunderstood or fear of risking her job.

This type of harassment seems to be inside the organizations. However, later in her account, she portrays an external and subtle form of sexual harassment, in which she shares some complicity. Probably, due to a trade-off for getting the business:

We have some clients who require from us, attractive consultants. I already get use to not saying anything in this regard, but in reality it shouldn't be. We should be measured for talent and capability.

The second one is the Mexican business society who does not accept the leadership of women team leaders. A problem that she claims to have overcome in her company, which is composed of a majority of women:

Business schools should make contributions on how to improve the labor relations of the teams lead by women. We need to understand why male executives have problems in listening to women executives. This is a challenge in the Mexican business society. For Praxis, this has been a process, but I think we have overcome it.

Finally, she constructs Mexican culture as less oppressive, when comparing with an “Indian” incident. This resonates with the argument that the construction of national identities is related to the construction of difference (Hall 1996) and the “Other”:

Gender differences are cultural. In 2000, an Indian company tried to acquire our company. For them, it was shocking to see, in the meeting of board of directors, the general manager [man] and the women executives. For them, a man with certain purchasing power is responsible for “taking out of work” his wife. This is clearly an example of the cultural differences and mentality of which the differences in gender depend upon.

In summary, she constructs women as better servants than men in the service industry. These women are positioned as prey for sexual harassment in- and outside the organization, while constructing men as more powerful both as bosses and as demanding clients for attractive women. However, she as a leader of her organization positions herself and her company to already overcome some of these asymmetries of power.

... We Cannot Risk the Disintegration of the Family for an Entrepreneurial Benefit ...

(Interview with the Manager of Information and Statistic Products of the Mexican Stock Exchange: In Clave 2007: 36)

Catalina Clave is the Manager of Information and Statistic Products of the Mexican Stock Exchange [MEXSE]. She is married and has two children. Catalina starts her account by introducing the financial sector as ‘male dominated’ and offering a retrospective example on how women’s bodies were ‘disciplined’, in this scenario, to be in accordance with a traditional feminine image:

The financial sector is generally male dominated. I remember that in the 80's, women only could enter to the Stock Exchange if they were dressed with skirts. Curiously, in almost all the places that I have worked, my team has been feminine in its majority.

She doesn't question that in her area, she is the only women manager. On the contrary, she has accepted this issue. Probably, her argument relies on her statements of both having a diverse team and, 'never perceived to be discriminated' (see later on):

Today, of the four area directors, I am the only woman; however, I do not question this anymore, it is not an issue. Currently, my teamwork is mixed and that enriches everybody. The diversity allows us to find different points of view and it generates alternatives.

She does not avoid the issue of gender equity discourse when talking about her diverse team. Rather, she adopts the gender diversity discourse as a managerial discourse for effectiveness. Similarly to Adriana's strategy of "othering" to construct difference, Catalina argues that the financial sector may be "better" than the shopfloor:

In terms of labor equity, it is important to question us the social level that we are analyzing because unfortunately the inequities depend on the social condition and context in which we are located. It is not the same, the financial sector than the shopfloor. I have been very lucky though, because I have never perceived to be discriminated for being a woman.

When she talks about gender equity, it seems that by benefiting women, the society will also win. However, she talks as if the family discourse should prevail over the equity discourse:

I would like to support those situations which seem to benefit the woman, but in fact, it is the whole society that is favored. In my teamwork, the majority of my [women] collaborators are young and the first newborns start to appear. I believe that we should rethink the labor issues without thinking if it is related to a woman or to a man, rather we should support to a society firmly based on the family

She compares the European practices with the Mexican ones in terms of school's schedules and laws that make the life of the working mothers easier to pursue a professional career:

In Europe, the schools offer schedules up to 5:00pm and the parents can pick their children up after work. In Mexico, in spite of the high percentage of working mothers, the schedules and the laws do not contemplate a clear support for the professional development of those workers. Labour incapability for pregnancy consists of 45 days before and after the childbearing. But the women should be able to decide when to use these 3 months

Even though she questions society and its laws for supporting women's career, she places the burden of the children with the mother and not with the father. On the other hand, she returns to the family discourse as central to the country's development:

I try to put me in the shoes of those women. I consider that we the women need to develop professionally, but in order that the country improve itself, it is necessary a solid platform based on the family. We cannot risk the disintegration of the family for an entrepreneurial benefit. How can we have a better society, if we do not take care in an integral way, regardless of the gender?

Although she questions social structures in Mexico for the lack of support to working mothers, when she enters into the equity discourse there is not much blame on men's hegemony. On the contrary, she draws on discourses of the family as the foundation for the society and the real support for improving the country. This discourse seems to play a bigger role for her 'regardless of gender'. Hence, the discourse of equal opportunities is diminished to some degree.

The Masculine and Feminine Constructions of Women Managers

We identify three dominant discourses and strategies that shape the identities and careers of the women in this study, as well as how they construct the other women: Fixing the women, valuing the feminine, Managerial and gender diversity discourse. *Fixing the women:* Purificacion [Postal Service] and Maria Teresa [HP] seem to endorse the strategy and discourse of 'fixing the women', which 'assumes that if women aspire to male-dominated jobs, [such as managerial jobs,] they must learn to act as the men in those jobs do' (Martin 2003: 72). This strategy is basically having an impact on women's identities by conforming to male norms and rejecting female attributes. For example, as uttered by these two leaders, respectively: 'women should work under the same conditions of men' and 'women need to be more audacious and aggressive'. This view is reinforced by their commitment to work. Considering the importance of the family and marianismo in Mexico, Purificacion is devoted 24/7 to her career in all kinds of organizations and positions. In a less extreme way, Maria Teresa has family, but has "failed" in two marriages. Instead, she has developed a long-personal relationship with HP. By the same tone, they both undermine the feminine and blame the women for that: 'not for me, because it is too heavy' or 'that is too much'. *Valuing the feminine:* Contrary to the previous strategy, Adriana [Praxis] and Catalina [MEXSE] endorse the strategy of 'valuing the feminine', where there is some re-turn to valuing some 'characteristics that are traditionally seen as "feminine", such as being empathetic, sympathetic, nurturing, non-competitive, deferential and having good listening skills' (Martin 2003: 73). Nevertheless, it may reinforce traditional stereotypes and dichotomies of masculinity (machismo) and femininity (marianismo) attached to men and women in Mexico. For instance, 'we have the capacity, by nature, to attend to more than one activity at the time', 'women know better how to attend the needs of the clients', or 'women need to develop professionally, but... it is necessary a solid platform based on the family'. Here we see that women offer some caring roles either for the organization or for the society. *Managerial and gender diversity discourse:* This discourse seems to be across narratives in different ways. For Puri [Postal Service], women should be incorporated if they can compete as men do, for Maria Teresa [HP] diversity offers the understanding of women as consumers with purchasing power, for Adriana [Praxis] women provide the feminine skills which are strategic for the service industry. Finally, for Catalina [MEXSE] having gender diversity improves decision making. Therefore, at the end of the day rather than adopting an equal rights discourse, they all seem to have a clear managerial identity

and follow a managerial and diversity discourse for incorporating women to the workplace with the purpose of organizational effectiveness. The identity of these women is sometimes shaped by discursive practices in the industry, sometimes by the organization, or/and the society.

Women Managers' Written Narratives in Magazines

Magazine MILENIO [Millennium]: Produced by Grupo Editorial Milenio and it was founded in 1997. The magazine has a political and journalistic orientation with 'an incisive, critical, and antisolemn...' tone in the words of the Group Director, who has a column called *asalto a la razón* (i.e. in reference to the *class consciousness* of the critical theorist Georg Lukács)(Fernandez-Fernandez 2009). The director states that: '...the truth is suspicious' (Noticieros 2009). The audience is offered with political news with a critical tone about the status quo of the political life in Mexico, rather than "facts". The selection of Puri [SEPOMEX] is interesting because this narrative was edited after her first anniversary in this position. MILENIO, presents the first woman leading this organization, showing its gender segregation. Our reading is that a governmental agency cannot offer equal opportunities to women due to the instrumental objectives of the global market, where both public and private organizations compete. By portraying this woman who dedicates 24/7 to her career, breaks traditional women's roles. Therefore, readers may blame this new leader, who comes from the private transnational world or the free market. *Magazine MUJER EJECUTIVA [Executive Women]*: Edited by *Grupo Mundo Ejecutivo* that has 8 magazines. One of the biggest business editorial groups in Mexico (Almargen-Editor 2005). This is a unique magazine oriented to the small segment of women with high purchasing power. In fact 82% of readership are women and of these 55% occupy top managerial positions (Perfil Mujer Ejecutiva, 2008). A review of the covers of the magazine reveals only pictures of successful women in business-like dress. The Editorial also has the magazine MUNDO EJECUTIVO [Executive World] that, in contrast to MUJER EJECUTIVA, portrays pictures of men in formal attire and focuses on top executives. The group defines itself as '[w]e are the multi-media editorial group with major penetration into the magazines and media segment that is oriented to those decision makers in the executive and business world' (Empresa Mundo Ejecutivo, 2008, translated). The second narrative was with Maria Teresa Carrillo the Manager of Corporate Issues and Communications of Hewlett-Packard Mexico. We have a successful woman, in a big multinational company of which she did not complaint at all. The selection of this organization goes hand in hand with the nature of this editorial group that focuses on presenting news of the top organizations in Mexico, including multinationals; and successful cases of women managers. The tone of the narrative is positive in terms of the relation between the company and this woman, who has found a personal development through many years of commitment. As mentioned before, a masculine discourse is favored. Similar to the titles of the two managerial magazines of this group: *Executive World* and *Executive Women*. The former is a male-dominated world and the latter positions a sub-species of manager who happens to be a woman and has to fight to be part of the Executive world. *Magazine REVISTA ISTMO [ISTMO]*: Founded in 1959 and edited by the *IPADE Business School* and *Universidad Panamericana*. These two prestigious educational institutions in Mexico have a Catholic orientation. The editorial states the importance of the participation of women in higher positions due to their feminine contribution to organizations. While presenting the barriers that still exist in Mexico for women, it reminds the readers not to forget the most important role of the women in

the long term: the family (Montelongo 2008). Similarly, the Director of the research center of the women states that Latin American women sacrifice their careers for the family, but 'more that seeing it as a handicap, it has to be seen as a plus' (Rivera 2008). The third narrative was with Adriana Garcia is founder and partner of Praxis, a consulting firm in systems. Finally, the fourth narrative was with Catalina Clave, who is the Manager of Information and Statistic Products of the Mexican Stock Exchange. In accordance with the ideology of this magazine, a more traditional and essentialist view of the women is presented, re-valuing the feminine and the ability for caring.

Conclusions

One important contribution of the present study is to understand how the women in this paper construct their identities and careers by drawing on some dominant discourses. It seems that organizational and societal discourses may be interlocked, presenting available identities or subject positions for them. However, the way in which these discourses manage the "insides" of the women in organizations is not uniform. While the discourse of *fixing the women* is assumed by two of these women, the discourse of *valuing the feminine* is endorsed by the other two. However, the *Managerial and gender diversity* discourses seems to appear in the constructions analyzed in the four accounts. At some point, it seems that the managerial identity of these women overcomes the feminine identity. In framing their identity as managers, these women's narratives reproduce the hegemonic masculinities and asymmetries of power (e.g. Hearn 2004). Another important contribution of this study is methodological in nature. We use narratives of the self as text not only symbolically, but also literally. We extract written narratives from business magazines in order to add to this underrepresented way of collecting narratives of the self. Although, scholars from the hermeneutics tradition have debated around the topic of author's intentions, an underlying assumption of this analysis is that both the editors of these business magazines and narratives' authors participate in the co-production of these identity texts. To some degree, our reading of these accounts fit each of these publications' ideology and audiences. Even if we assume that the editors' original intention, for publishing these successful cases of women, was to promote the equity discourse, we contend that the narratives in each of these magazines reproduce specific gender ideologies.

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Human Resources & Industrial Relations - Ressources Humaines & Relations Industrielles

ASB 2010
Halifax, Nova Scotia

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EMAIL AND PERFORMANCE FEEDBACK: AN EXPLORATORY STUDY OF E-FEEDBACK

This study explores the use of email for job or performance feedback in organizational work settings. The domains of performance feedback and organizational communications are reviewed, gaps identified, and then the results of an exploratory set of interviews are used to develop a general model, inclusive of both formal and informal feedback given and received in email.

Introduction

While job feedback has been found to be an effective tool for enhancing employee performance in the workplace (DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004), the majority of this research has taken place within a pre-21st century paradigm; one grounded almost exclusively in face-to-face interactions. The use of Internet and Intranet technologies for organizational communication are transforming many of the processes found in the modern workplace; while these technologies enhance many processes and permit efficiencies throughout an organization, they also hold the potential to reduce face-to-face interactions (Spence, 2002; Sproull & Kiesler, 1986; Walther, 1995) and to introduce new confounds into organizational communications (Weatherbee, 2007) including feedback processes. Interpersonal interactions in email can easily become problematic due to the lack of non-verbal and verbal cues used to ground communications and which produce a common understanding (Blanchette & Richards, 2003; Byron, 2008). The nature in which email affects communications has implications

for our understanding of task and job performance feedback in modern organizational settings as the use of these technologies increases.

Although there is a wealth of past research on both informal and formal communications in organizations; which indicate that performance feedback is a critical work factor for both supervisors and subordinates, research has rarely been focused on the effects of the communication medium that is used for the provision of feedback. Moreover, although the use of email, as a communication medium, has been attracting recent attention from researchers as to its influence on interpersonal communication in organizations, there has been limited, if any, research focused on the effects email may have on communication processes within performance feedback models. Therefore, there is potentially a significant gap between our understanding of task and job performance feedback using these new modalities, and the potential effects they may have on performance feedback processes. Given this gap, a framework is needed within which to investigate feedback processes within the context of email used as the communication medium. In order to guide future research, a common coherent framework which builds upon 20th century research may serve as an effective basis for both research and practical workplace implementation and application.

Objectives of this Research

The aim of this research was to explore and identify if feedback, by way of email, is (a) becoming more popular in organizations, (b) what general effects, if any, email as a communication medium has upon performance feedback processes, and (c) what benefit or detriment, if any, it is generating? This study examines the relationships between feedback, both formal and informal, and the process of giving and seeking feedback through email. This study also explores how email is used in an informal and formal context for feedback purposes and what impact this had on the feedback and the self-reported performance of persons receiving feedback.

Conceptualizing Performance Feedback and Communication Domains

The review which follows serves to frame the study context and to synthesize the major factors concerning both feedback and organizational communications. The discussion first examines performance feedback and then feedback processes with the major factors of communication theory and email as an organizational communication medium.

Feedback and Work Performance

Before Maier's 1958 study, performance feedback was a tool that was not well understood (as cited in Van Fleet, Peterson, & Van Fleet, 2005). Since then, feedback as the subject of study has dominated many of the organizational and psychological journals as researchers invested significant effort into understanding and developing performance management processes and tools. Feedback is described by Steelman, Levy, & Snell as "a subset of the available information in the work environment that indicates how well an individual is meeting his or her goals. It conveys which behaviors are desired by the organization and includes an evaluation of the quality of relevant work behaviors" (as cited in Rosen, Levy, & Hall, 2006, p. 211). Another definition states: "any information that people receive or organizations receive about their behaviour or performance, its effect on others, or comparison to a standard or expectation" (Sniderman, Bulmash, Nelson, & Quick, 2007, p. 579). Despite the different definitions of feedback, work or task feedback has been found to be an effective method for increasing individual, group and organizational performance when properly utilized (DeShon et al., 2004).

Performance feedback may be sub-divided by distinguishing between informal and formal feedback processes. Formal feedback, commonly given during a performance appraisal, is normatively required as part of the organizational performance review of employees. These normally consist of scheduled meetings where critical assessments of job and task performance, often in relation to goals and expectations set in advance, occur. Performance feedback in these settings is normally fully documented (Ashford & Cummings, 1983). Informal feedback, however, may be quick positive or negative expressions of progress, or lack thereof, or for other suggestions for improvement. Informal feedback is normally given verbally. This method is not likely to occur in a meeting at a scheduled time and is not usually limited to once or twice a year (Jones, George, Rock, 2007). Informal feedback is considered to be outside of formal mechanisms and procedures for the delivery (London & Smither, 2002) and so is not normally documented.

Informal performance feedback given to subordinates was found by Larson, Jr. and Skolnik to improve the quality of succeeding formal appraisals; due to the frequent receipt of feedback which serves as a guide for both subordinates and superiors in between formal performance evaluations (1985). It was noted by Bernardin & Beatty that receivers of feedback are not usually content with only an annual performance appraisal (as cited in Evans & McShane, 1988); thereby highlighting the importance of informal feedback-giving throughout the time interval between formal appraisals. Steelman et al. argued for the value of frequent, unofficial feedback in the context of efficient workplace performance (as cited in Rosen et al., 2006). This has implications for email use as a communication medium for feedback.

Communication Theory: Understanding the Fundamentals

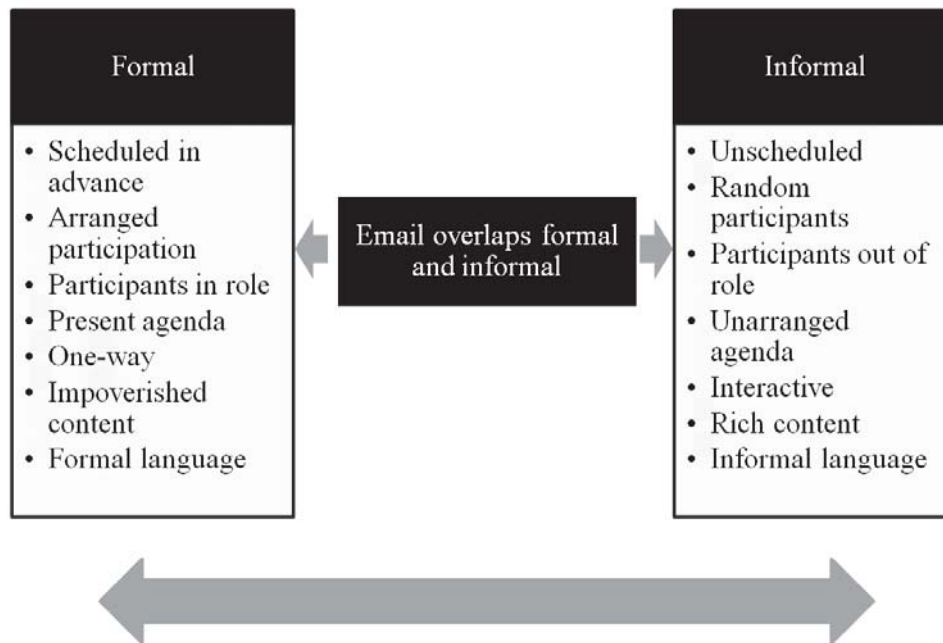
Communication is a key factor in workplace relationships and organizational communication is a significant dimension of organizational success. Communication, as defined by Edstrom & Galbraith, is the behavioural process through which information is exchanged (as cited in Penley, 1982). With a focus on the workplace, organizational communication is a dynamic process, requiring continuous evaluation in order to sustain shared meaning across organizational members (Gilsdorf, 1998). Carter declares that organizational communication is not a natural process; but rather, an *artificial procedure* that has been designed to bridge gaps in the system needed for coordination of organizational effort (as cited in Grunig, 1975).

Communication theory broadly classifies communication as formal or informal. While there are inconsistent descriptions, there are distinctions made throughout the literature between formal and informal communications. Paralleling Daft and Lengel, a detailed distinction is given by Kraut, Fish, Root, and Chalfonte (2002) in Figure 1. This illustration has been modified for visual clarity and to assist in the explanation of formality dimensions. Email has been added and it is proposed that email overlaps both formal and informal communication. Although some research argues that it is informal and some that it is formal, email, as a communication medium, has characteristics of both formal and informal and is perceived differently by many users. The different perceptions are what make the email phenomenon of interest to communications researchers and this will be examined in greater depth in the next section.

Formal communications have conventionally been associated with hierarchical relationships such as found between a subordinate and supervisor (Johnson, Donohue, Atkin, & Johnson, 1994), while informal communication is usually found amongst peers. There are also potentially informal communication engagements between supervisors and subordinates but whether communication is perceived to be formal or informal is influenced by various factors such as the relationship between communicants, the nature of the setting, the communication medium used, and the frequency of communication itself (Kraut et al., 2002). However, informal communication seems to be the dominant form of interpersonal communication at work; ‘filling in the gaps’ between formal communications and essential to effective relationships at work needed for organizational functioning.

Figure 1:

Adapted: The Formality Dimension of Communication (Kraut et al., 2002)



Perception is a key factor in communication as it is the origin for how meaning is interpreted by the sender and will be interpreted by the receiver as communication "... is inherently subjective and influenced by people's personalities, values, attitudes, and moods, as well as by their experience and knowledge" (Jones et al., 2007, p. 340). This innate nature can contribute to effective communication when accurate or can affect communication in ways that create misunderstandings when interpreting messages. It is acknowledged in communication research that subordinates differ in their capability of understanding a message when presented with a mixture of verbal and non-verbal expressions. This results in the same message being received differently by different subordinates; depending on the amount of importance placed on elements such as non-verbal cues and verbal presentation (King & Young, 2002). This barrier is partly caused by the individualized formation of meanings; Blagdon and Spataro (1973) describe meanings as created in the minds of individuals and which therefore reflect the clarity of one's communication process.

There is also dimensionality to both formal and informal communications. Verbal communication describes the actual words in the spoken (telephone, face-to-face, etc.) or written message (letter, email, etc.); while nonverbal communication describes such elements as facial expressions and body language (Jones et al., 2007). Some researchers define communication style as "the characteristic way a person sends verbal, paraverbal,

and nonverbal signals in social interactions denoting (a) who he or she is or wants to (appear to) be, (b) how he or she tends to relate to people with whom he or she interacts, and (c) in what way his or her messages should usually be interpreted” (de Vries, Bakker-Pieper, Siberg, van Gameren, & Vlug, 2009, p. 179). This describes interpersonal communications and the impact perception has on interpretation; it is also the product of cognitive processes of both the sender and receiver.

Inquiries into the challenges associated with choosing a specific workplace communication medium have enhanced our comprehension of how to effectively send a message that can be more accurately interpreted and understood by the receiver. Straus and McGrath, among others, provide the notion that different mediums are appropriate for different messages and circumstances (as cited in Byron & Baldrige, 2005). Valacich, Mennecke, Wachter, and Wheeler found that individuals vary in sensitivity regarding the medium depending on the task or objective of the communication (as cited in Barry & Fulmer, 2004), such as performance feedback or information delivered to all organizational members. Perception plays a role in the preference and opinion of media characteristics; past experiences, as well as one’s skills, will influence future use and preference of communication mediums (Carlson & Zmud, 1999; Westmyer, DiCioccio, & Rubin, 1998). For example, a subordinate whom is not comfortable with using email other than to send documents, due to negative experiences or lack of training in using the technology, may prefer telephone or face-to-face communication. A supervisor sending messages to a subordinate is taking the chance that misinterpretation could occur due to the negative perception of email held by the subordinate.

In determining the appropriate communication medium for the message, the following three characteristics are important to consider: information richness (the amount of information the medium can transfer), time needed for communication, and the need for documentation (Jones et al., 2007). Media richness theory states that computer-mediated communication, email, for the purpose of this study, is lower in information richness than face-to-face communication (Daft & Lengel, 1984). Daft and Lengel go on to list communication mediums from greatest richness to lowest richness: face-to-face, telephone, personal documents, impersonal documents, and numeric documents (1986). For example, if the message is not urgent but is personal, it may be more effective to have a face-to-face conversation than to send an email. On the other hand, if the message is urgent and requires documentation, it would be appropriate to send via email as long as it is not subject to misinterpretation. It is clear that there is not an ideal communication medium, as it is subject to the decision making of the sender; however, a good communicator will consider the implications of each communication medium before sending a message.

Research on email, as a communication medium, has not been conducted in as much depth as other communication media. Yet, when considering the importance of

nonverbal cues on perception and the lack of those cues when using email for communication, it is likely that a message containing feedback will be perceived differently than intended when sent via email. This suggests that a significant degree of ambiguity may be present in email communications containing performance feedback.

Email as a Communication Medium

Email is thriving as a computer-mediated communication technology (Dimmick, Kline, & Stafford, 2000); and, although some studies show positive aspects and usage of email including availability, enhanced communication, and time efficiency (Spence, 2002; Sproull & Kiesler, 1986; Walther, 1995), others demonstrate significant problems associated with phenomena such as aggression, sarcasm, insults, intimidation, and misleading cues (Friedman & Currall, 2003; Landry, 2000; Markus, 1994; Moore, Kurtzberg, Thompson, & Morris, 1999), resulting in differentiated views as to its organizational effectiveness.

Marwick states that email can establish a continuous connection with supervisors or subordinates when in different locations and not able to meet face-to-face (2001). It is less formal and allows a person to communicate information that they may otherwise not be able to due to location barriers or lack of time (Sproull & Kiesler, 1986). Email, as a communication medium, may appear to one subordinate to have more characteristics of informal communication than formal, in accordance with Figure 1. Another subordinate may consider the message received to be more formal in nature. Further, researchers have found electronic communication to be subject to lower costs and more efficient than face-to-face communication (Clemons, Reddi, & Row, 1993; Young, 1995). Finally, one of the major areas of controversies is whether emotion can be expressed through email due to the lack of nonverbal cues. Some researchers have stated that emotion can be observed through computer-mediated communication (McCormick & McCormick, 1992; Rice & Love, 1987). Although not as prevalent as in face-to-face interactions, emotion can be expressed through email using descriptive words or emoticons.

A comprehensive study conducted by Kruger, Epley, Parker, and Ng found that participants overrate their ability and the ability of others to effectively communicate through email (2005). Consequently, there is a potential problem with interpreting emotion through an email due to the lack of paraverbal and nonverbal cues, such as pitch and gestures (Blanchette & Richards, 2003; Byron, 2008). In addition, emotion is perceived by the receiver even if not intended by the sender (Byron & Baldrige, 2005). The use of capital letters and excessive occurrences of exclamation marks are examples of misinterpretation possibilities (Turnage, 2008). Daft and Lengel examined the missing opportunity for immediate feedback when communication occurs through the use of email and find that subordinates often become distressed when not given the chance to

seek clarification that would otherwise be present when speaking face-to-face. Consequently, this leads to lengthy periods of time devoted to confusion and discomfort over what is often a misunderstanding. The study suggests that email be used for “very simple or unequivocal” messages that do not involve evaluations or critically important details (as cited in Byron, 2008, p. 312). It is clear that email is a prominent tool and is becoming progressively more important within organizations for communications of all types. Although these recent findings are critical to our understanding of the phenomenon, the features of email alone do not accurately depict their effects on feedback, via email, or on a recipient’s interpretation and behavioural response. There is a gap in our understanding as to the impact email usage has on feedback processes and subsequently the individuals affected by it. Due to the ambiguity in email and different perceptions of feedback-giving and feedback-receiving, this may create the possibility for ambiguity in feedback via email. It is important to recognize and understand if email is being used for feedback delivery and if it is an appropriate medium for the delivery.

Method

Locke states that organizational research often employs a grounded theory approach for its ability to “capture complexity and facilitate theoretical work in substantive areas that have not been well researched by others” (as cited in Bryman & Bell, 2007, p. 592). Because this study is examining an understudied area, it is appropriate to employ a grounded theory approach. This research seeks to understand the phenomenon by using the underlying principles of grounded theory, such as utilizing data gathered from semi-structured interviews, to determine whether or not our understanding of the feedback process will be modified with the introduction of email as the communication medium. Using grounded theory, as outlined by Glaser & Strauss 1967 and Strauss & Corbin 1990;1998, (as cited in Bryman & Bell, 2007), to identify patterns of meaning and interpretation independent of what past research declares regarding feedback and email as two separate domains, this study synthesizes the current literature and evaluating potential linkages through a comprehensive analysis of the domains.

Participant Selection

Due to the nature of this investigation, the most fundamental criteria for site selection were (a) the presence of feedback processes in the workplace, and (b) that employees must use organizational email for work communications. Initially participants were selected from a pool of individuals known to the researcher, and subsequently

participants were asked for referrals using a snowball methodology to increase the participant pool. The selection process attempted to include a variety of demographics, organizations, and job positions in order to gather preliminary information from a wide range of circumstances. Selecting participants of different genders, ages (over the age of majority), and seniority allowed for a broad sample needed to provide information useful for gaining insight into the organizational environment and feedback in email. A total of seven participants were selected, four females and three males ranging in years-employed with their current organization from less than one to 33 years. These individuals represented occupations from educational institutions, manufacturing plants, health care establishments, non-profit organizations, and the telecommunications industry.

Data Collection and Analysis

Semi-structured interviews were conducted with seven employees of various organizations and interviews were tape-recorded for accurate transcriptions. As comprehensive understanding of the phenomenon can best be achieved by focusing on the meaning each participant holds in relation to the construct of performance feedback and email technology, broad, open-ended, questions were employed and data was collected in the setting where the participant worked. Interviews were conducted at the participant's place of employment in person wherever possible, but occurred via telephone if arrangements could not otherwise be made.

To analyze the data, the main features of a grounded theory approach were utilized to determine relationships and to "form a theoretical framework that explains some relevant phenomenon" (Bryman & Bell, 2007, p. 587). While there are many procedures within the grounded theory approach that produce findings for the researcher, "Coding is one of the most central processes in grounded theory. It entails reviewing transcripts and giving labels to component parts that seem to be of potential theoretical significance..." (2007, p. 586). Open coding, axial coding, and selective coding procedures proposed by Strauss and Corbin allowed for the appropriate focus during different phases of analysis (as cited in Bryman & Bell, 2007). As analysis proceeded, the data that emerged from the research was compared with previous data and utilized to guide subsequent data gathering. Codes were generated, reviewed, and tailored by utilizing the constant comparative method described by Glaser & Strauss for comparing different concepts of the phenomena (as cited in Bryman & Bell, 2007).

The first procedure for analyzing the data recorded in the transcripts was open coding. During open coding, data was closely examined and compared for similarities and differences. The aim of open coding is to discover, name, and categorize phenomena into meaningful descriptions. Open coding lead to axial coding, which is the process of reassembling data that is broken down into concepts and categories during open coding

and making connections between the concepts and context of the transcripts (Bryman & Bell, 2007). The last procedure used was selective coding, which is the process of integrating and refining categories (Bryman & Bell, 2007). To integrate the coding process techniques such as relating the participant's accounts to central components of the current literature by using diagrams and reviewing transcript notes. The refinement of the analysis included filling in poorly developed categories and integrating and combining categories to extend the conceptual framework. Within this procedure the areas needing further development were uncovered and the necessary research needed to expand the knowledge was noted.

Unlike quantitative research where validity is measured by the significance of the numbers presented during analysis, this qualitative study focused on conveying information and patterns deemed important through the thoroughness of the chosen methodology. To insure credibility of the findings, engagement with interview participants was continued to the point of theoretical saturation, careful recording of transcripts occurred, and procedures outlined in the grounded theory approach were maintained. Upon the seventh interview a point was reached where no new information was being gathered and consistent explanations and occurrences across participant experiences were found.

Results and Discussion

Email Use

Organizational email policies at respondent sites vary from simple informal guidelines and suggestions to formalized control through documents, strict policy, and employee training sessions. Despite the variation in organizational email use, all participants acknowledged their sensitivity to media use when attempting to understand content and also when sending an email. Sensitivity concerning email reflects Daft and Lengel's suggestion that email be used for "very simple or unequivocal" messages that do not involve evaluations or critically important details (as cited in Byron, 2008, p. 312). However, while participants understood the notion that email, as a communication medium, may contain a significant degree of ambiguity, there were fewer acknowledgements that they understand how misunderstanding could arise. Aside from informational debriefs and attachments, most messages sent through email are relatively short and perceived to be simplistic. Although all participants find reading and understanding email messages relatively easy, all have encountered incidents where further communications to clarify ambiguity or misunderstanding were needed.

Email use for organizational purposes was encouraged in all cases examined. However, across the various organizations, email was found to be used for both formal and informal purposes. Email communication was used most often in time-sensitive cases or when availability and conflicting schedules prevented face-to-face interaction. Email was used to send informal greetings, notes, formal instructions, documents and for both informal and formal feedback. These results are consistent with the findings of Spence (2002); Sproull & Kiesler (1986); & Walther (1995).

Email Ambiguity

Misunderstandings can occur without originally being detected or resolved due to the perceived notion of one's ability to comprehend a message. These results reinforce the findings of a comprehensive study which found that participants overrate their ability and the ability of others to effectively communicate through email (Kruger et al., 2005). Another study found that simplified written responses are usually not interpreted in parallel to the intended message (Stull, 1978) resulting in miscommunication and the message being received differently by subordinates depending on the amount of importance placed on things such as non-verbal cues and verbal presentation (Blanchette & Richards, 2003; Byron, 2008; King & Young, 2002). These events most often resulted in face-to-face communication to resolve the issue.

Email Feedback

E-feedback was used by Tuzi to describe "...feedback in digital, written form and transmitted via the web..." (2004, p. 217). His work focused on the use of electronic feedback in an academic setting, specifically providing electronic feedback to second-language writers. This study, however, focuses on feedback processes in the workplace and involves the relationship between supervisors and employees. For the purposes of this research, e-feedback represents e-mail feedback which is a sub domain of electronic feedback; e-feedback is job/task performance feedback in digital, written form and transmitted via e-mail.

All participants, except one, preferred receiving feedback in face-to-face exchanges. This finding parallels that of the findings of Cummings, Butler, and Kraut who show that email proved to be a less effective communication medium than other modalities in building and sustaining social relationships at work (2002). Evaluators tend to provide a higher quality of feedback when face-to-face resulting in the receiver displaying stronger feelings of understanding (Herbert & Vorauer, 2003). This illustrates that although face-to-face is preferred, the use of email appears in many circumstances to override these desires as depicted in Figure 2. This presents practical reasons for concern in regards to the employment of frequent email use as a replacement for traditional face-

to-face communication. As described by Gladwell, with email becoming more popular for workplace communication, communicative anticipation is decreased which leads to shorter responses to each of the many emails received (2002). Thus, this potentially overused medium may further contribute to uncertainty of interpretation.

Feedback was found in all cases to be considered important and was, as a result, desired by all participants. All participants received feedback through email and perceived it to be useful. All participants observed that feedback-seeking and feedback-giving behaviours in email had increased over time. They believed this was due to email's convenience and its capability for timely delivery. Due to the uncertainty associated with email technology, feedback-seeking is therefore found to increase. Although participants did not always perceive themselves to be seeking feedback through email, all participants sought performance and/or progress-related feedback. This finding is supported by Ilgen and Moore (1987) who found subordinates would actively seek feedback when information was needed or when perceived to be of use in increasing performance. For this study, task or progress feedback seeking and giving was more prominent. As illustrated in Figure 2, without a formal performance appraisal, some subordinates were found to place more emphasis on the informal performance and progress feedback in email with these informal feedback emails acting as substitutes for formal systems. Subordinates appeared to need performance (big picture) feedback and when they did not would attempt to fill the gap by seeking task-related feedback (Herbert & Vorauer, 2003). This stresses the importance subordinates place on feedback as a measure of work performance. Whether performance or progress, face-to-face or email, subordinates need feedback as an encouragement and improvement mechanism. Giving informal performance feedback to subordinates was found to improve the quality of succeeding formal appraisals (Larson, Jr. & Skolnik, 1985). This is also found to be an accurate statement within the framework of email as a communication medium. Whether through giving or seeking, supervisors and subordinates, respectively, had a greater appreciation and understanding of formal performance appraisals.

Most participants perceive feedback given through email to be more informal and when delivered face-to-face to be more formal. Conversely, all but one participant saved and/or printed the 'informal' feedback sent via email, as shown in Figure 2. This was especially true when there was a lack of feedback outside of that being delivered using email. Although formal communication is found to be less reliable than informal (Harcourt, Richerson, & Wattier, 1991), participants seem to place more importance on formal feedback systems. This demonstrates the need for formal performance appraisals to reflect the various informal feedback evaluations given between formal appraisals. It was observed that positive feedback received via email was the target for formalizing by printing. Negative feedback was not treated similarly. As past research demonstrates,

subordinates are more likely to place a greater importance on positive feedback and often avoid negative feedback (Moss & Sanchez, 2004; Moss, Valenzi, Taggart, 2003).

Accounts from participants described open communication with their superiors that allowed for input and discussion regarding their performance feedback, either face-to-face or in email. This parallels research by DeGregorio and Fisher, and agrees with the basic premise that interactive models involving subordinate participation and open dialogue tend to produce more effective outcomes (1988). This applies just as much to email communication as it does face-to-face modalities. Greller states that without the ability or opportunity to contribute to the discussion or ask questions, it was found that employees often feel *uniformed* and confused (1980).

The findings suggest that email feedback (e-feedback), with informal task and progress feedback dominating, is increasing in organizational workplaces. With this increased usage, formal performance appraisals may no longer be the main source of useful feedback for respondents. Email technology has been altering the way in which subordinates communicate with their superiors on a daily basis with regard to feedback. One outcome of this study indicates the importance of how a message is written and transmitted. Although the quantity of feedback is important (Ilgen, Fisher, & Taylor, 1979), so too is the quality (O'Reilly & Anderson, 1980). These findings indicate that while email does allow for an increase in the quantity of feedback communication between a subordinate and superior; in many ways email appears to lack the quality of feedback that would otherwise be achieved through face-to-face interaction.

Limitations of this Study

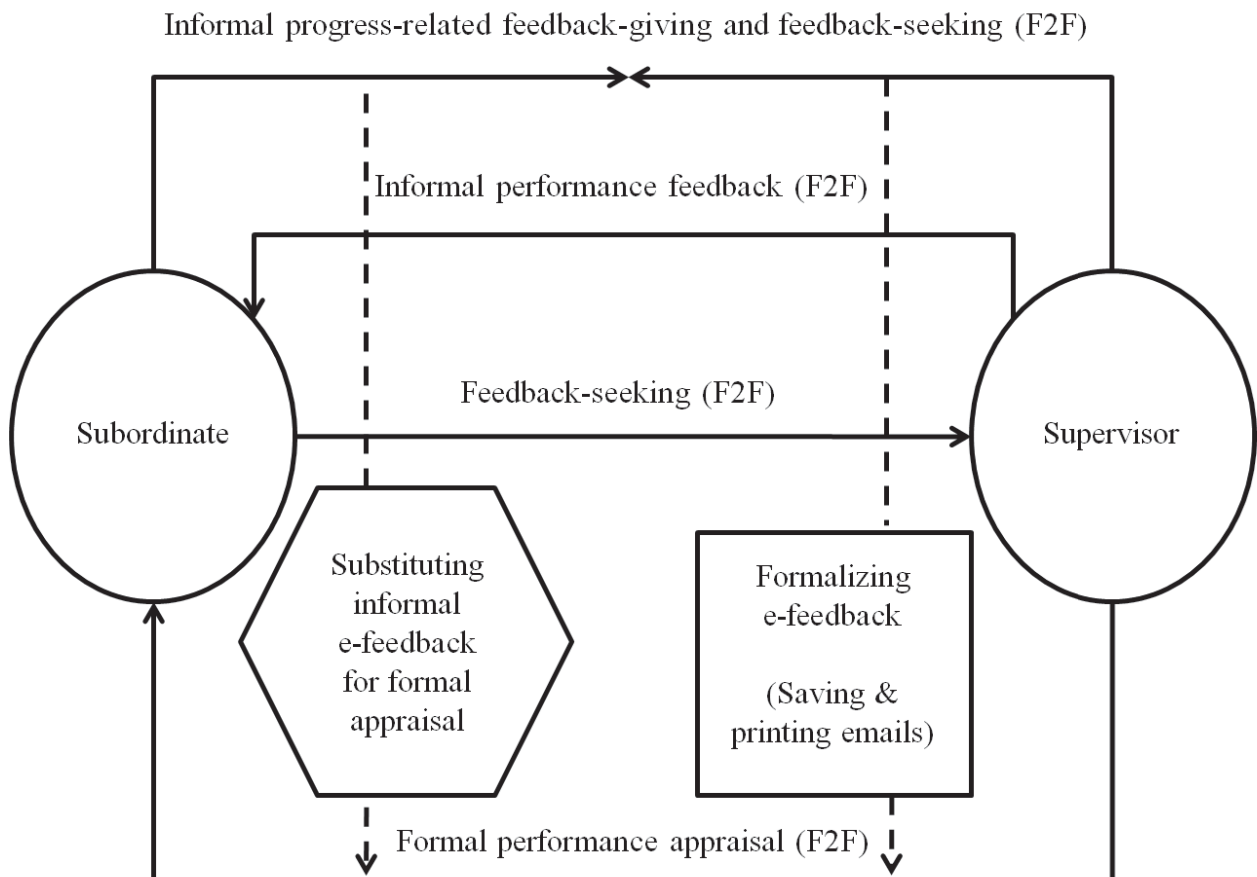
While using semi-structured interviews promotes deep, detailed descriptions from the participants viewpoint it is important to note the limitations associated with this study. The information captured during the interviews is based on the memory of personal experiences and perceptions of subordinates and is therefore subject to distorted memory and bias. While the theoretical framework developed here is based upon the analysis of behavioural patterns and perceptions of respondents it is based upon a limited data set. However, to investigate a relatively new area of study such as this, it is first necessary to view each organization and participant as its own distinct and complex entity. For that reason, it is difficult to generalize the results across all organizations. It is also acknowledged that further qualitative research followed by quantitative analysis should be conducted next.

Conclusion, Implications, and Suggestions for Future Research

Although the use of email has been attracting some recent attention from researchers as to email's influence on interpersonal relations in organizations, there are still large gaps in our understanding concerning the relationship between the use of organizational email, the giving or seeking of performance feedback, and the perceptions of feedback either given or sought in this medium. The findings of this research have emphasized the importance of feedback-seeking and feedback-giving at work, as well as how email technology is contributing to these activities. It has been demonstrated that both performance (job) and progress (task) feedback are occurring through email and are influenced by the perception of the feedback giver as well as the receiver. It also shows that subordinates may change their perception of formal and informal feedback to better suit their perceived needs. Overall, the proposed model and research findings present a framework that may be useful to understanding the importance of this increasing phenomenon.

Figure 2:

Model of Formal & Informal Feedback-seeking & Feedback-giving Implications for Email at Work



This research has various implications for knowledge workers interested in organizational development and communication media as well as those responsible for employee evaluation and feedback delivery. With email containing a respectable degree of ambiguity and still being researched as to the effects it has on social and work environments, the academic implications support the need for further investigation into the gaps currently separating our understanding. On a practical note, feedback may be being communicated through email at work without a sufficient amount of research conducted on the domain. E-feedback, its degree of formality and frequency, is creating a more complex context than previous to email. This has the potential to create fragmented information sets concerning job/task performance which could result in unwanted or undesirable behavioural outcomes.

Due to the several ways a receiver can perceive a message; this research proposes that, with added ambiguity, feedback sent through email increases the likelihood of misinterpretation and, consequently, corresponding responses. Although the results of this study show an understanding and sensitivity to media use and email challenges, it is still important to further investigate the perception held by subordinates regarding feedback being delivered via email. Significant research is still needed on the impact feedback via email has on psychological processes of subordinates and workplace performance.

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ASB 2010
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EXPLORING THE LABOUR SHORTAGE IN THE HALIFAX ACCOMMODATIONS INDUSTRY: INDUSTRY PERCEPTIONS OF CAUSE AND EFFECT

The purpose of this study was to examine the challenges and opportunities facing firms competing in the accommodations sector in Halifax, Nova Scotia, with the goal of recommending new strategies for attracting and retaining qualified staff. Data was collected from Halifax accommodations firms. The results reveal that while there are some financial limitations that lead potential employees to migrate to larger cities in search of higher pay, that is only one part of the problem in seeking qualified labour. Rather, issues impacting the labour shortage include industry image problems, underlying workplace issues and lack of managerial understanding of the problem. Recommendations are provided for overcoming these difficulties.

Introduction

The purpose of this study was to examine the challenges and opportunities facing firms competing in the accommodations sector in Halifax, Nova Scotia, with the goal of recommending new strategies for attracting and retaining qualified staff. The difficulty experienced by many firms in the tourism services industry, particularly those in accommodations and food and beverage sector, are not unique to Nova Scotia. Destinations throughout the world are preparing workforce strategies to combat worker and skill shortages. These are forecast to get worse.

In Canada, British Columbia's Chamber of Commerce in April of 2002 published a Skills Shortage Initiative which identified retention and human resource development strategies as vital. The 2007 Alberta Workforce Strategy for the Tourism and Hospitality Industry represented a collaboration of industry and government to address these types of challenges over the next 10 years.

In the United States, the President's 2006 High Growth Job Training Initiative identified the hospitality industry as a priority sector which has, and will, undergo high growth between 2002 and 2012, and will add 1.6 million new jobs to the US economy. Recruitment and retention challenges and solutions are identified as "overarching issues."

Monroe County's Florida Keys and Key West faced a desperate situation with normal retention challenges exacerbated by high housing costs. Four out of every five tourism workers are housing cost burdened (over 30% of their income goes toward housing costs). Sixty-four percent of tourism workers have plans to leave the Keys within the next 5 years. At the other end of the US, Wisconsin's Department of Transportation presented a 2000 report "Bring Them Home. A Workforce Crisis Strategy" to the Governor's Council on Tourism.

Globally jurisdictions are facing similar tourism human resources challenges. New Zealand's 2006 Tourism and Hospitality Workforce Strategy, investigated perceptions of tourism careers. Without a sufficient resource of talented and motivated workers, the accommodations industry will be hard pressed to deliver the high service level and added value that travelers have come to expect.

The competitive nature of the hotel industry leads to little variation occurring between properties. As a result, the delivery of a competitive service level is a standard method used to differentiate and to be successful in this environment (Chang, 2006). Good service or excellent service is meant to please the guests and to create a competitive advantage. This strategy of offering service that cannot be copied or excelled by other competitors is the core of any service industry and the hospitality industry is one that depends on its employees to deliver the core product, the service.

The challenges of the global marketplace have compelled firms in the hospitality industry to transform themselves into truly customer focused business enterprises – irrespective of the products and services they sell. The quality of services has become recognized as the vital value-assessment variable in predicting a hospitality firm's success" (Kandampully & Proomsivapallop, 2005).

Motivated employees are necessary to deliver the level of service required for hotels to remain successful in the ever increasing competitive market. The product delivered in this service market is highly intangible and the employee service levels and customer interaction are very important parts of the overall product experience for the guests. Therefore, management has to ensure that employees are trained and motivated to fulfill this critical element of their jobs."Employee satisfaction depends on a variety of factors such as the manager's style, the employee's personality, and the particular stressors of the workplace" (Poulston, 2009, p. 24.) The hospitality industry is well documented as a high stress environment (Ghiselli et al, 2001; Hsieh et al, 2008; Lo & Lamm, 2005). This is now coupled with another challenge: that of a decrease in qualified staff to fill the ranks.

The tourism industry is an important component of the economy. "In 2008, tourism activity generated over \$74 billion in revenues, represented 2% of Canada gross domestic product (GDP) and employed over 660,000 Canadians" (Industry Canada, nd.). Within this projected growth also lies the inherent demand for jobs. Labour demand in the tourism sector in

Canada is projected from 1.7 million jobs in 2005 to 2.2 million jobs in 2025, a 33% increase. Alberta is forecasted as having the greatest growth in potential labour demand at 52% with the Atlantic Provinces having the lowest. However, the labour force size is not projected as being able to sustain this demand with a forecast by 2025 of a shortfall of nearly 350,000 jobs (Canadian Tourism Human Resource Council ((CTHRC), 2008). This shortfall number was updated in 2010 and now is forecasted as 219,000 full year jobs by 2025, a 10.3% of potential labour demand (CTHRC, 2010). This number may not be the largest in Canada "...but the Atlantic Provinces could endure the most acute shortages as a percentage of overall demand" (Ibid, 2010, p. 15).

In Nova Scotia the economic recession eased the labour shortage but only temporarily. Nova Scotia's tourism sector had a surplus in 2009 of approximately 977 full-year jobs. As the market conditions improve, it is forecasted by 2025 the shortage for Nova Scotia's tourism sector could reach over 6,300 full-year jobs, with the greatest amount in food and beverage services, followed by accommodation, transportation, recreation and entertainment and travel services (CTHRC, 2010). Out migration will also impact the population of Nova Scotia with a forecasted average of 714 young people per year

The reasons for the workforce shortage in the tourism industry includes demographic changes such as an aging population, declining youth, increase in immigration leading to language barriers, and more women entering other careers. Historically, women were a large percentage of the part time labour force depended upon by many of the hoteliers. Lower fertility rates have also dampened the population growth. To compound the situation, the industry has a negative image for substandard wages, non-exciting working conditions and little to no benefits. It is currently difficult to attract people into the tourism industry due to its image so high turnover is already a challenge in the industry. "Other industries offer higher wages, better working conditions, career pathways and learning opportunities" (Tourism Industry Association of New Zealand, 2006, p. 8).

A number of groups have identified the workforce shortage in attempts to devise strategies to mitigate the impact. The Tourism Industry Association of New Zealand noted that: "The tourism industry will need around an additional 100,000 people to maintain and grow the industry. Almost 5,000 people per year will be needed for expansion alone (without accounting for replacement)" (Tourism Industry Association of New Zealand, 2006, p. 6). The Arizona Office of Tourism determined that: "...hospitality industry job openings will exceed the national average by 287 percent over the next ten years" (Arizona Tourism, nd. p.3). The Alberta Tourism Industry concluded that: "Employment in the accommodation and food services segment of the industry is expected to grow on average by 2.2 percent annually over the next five years and generate almost 10,913 new jobs by 2011" (Alberta Employment, Immigration and Industry, nd.). According to the Monroe Country Tourist Development Council, Florida: "Three out of every five tourism workers is planning to relocate outside of Monroe County over the next five years, an estimated 8,000 tourism workers" (Bennett, 2006, p. 64).

The President's High Growth Job Training Initiative, US Department of Labor noted that: "As the percentage of youth in the workforce has declined, the hospitality industry has sought new sources of labor, such as immigrants and older workers, in order to avoid facing an insufficient supply of workers to satisfy demand" (US Department of Labor, 2006, p. v). The Canadian Tourism Human Resource Council concluded that: "By 2025, the tourism sector will see a labour shortage equivalent to almost 219,000 full-year jobs" (CTHRC, 2010, p.i). Some of

the disadvantages of a workforce shortage have been lessened by the current negative economic conditions not only by decreasing the number of tourist arrivals but also by decreasing the expenditure of money on leisure activities such as dining, taking vacations, visiting spas, and participating in weekend get a ways. However, the problem will persist unless some action is taken to remedy the situation. There is a danger that the persistence of this shortage will increase the tendency to accept employees with lesser skills and knowledge and intensify the erosion of service excellence in the industry.

This paper explores the labour shortage by auditing labour supply in the accommodations sector among members of the Hotel Association of Nova Scotia (HANS), located within the Halifax Regional Municipality (Halifax). The conclusions in this paper include recommendations to create and maintain a viable workforce.

Methodology and Research Goals

Three goals directed this research. The first goal was to identify the nature and extent of the labour shortage affecting local accommodations service providers. This goal required auditing properties to determine:

- the percentage of total labour force by department and turnover rates
- the extent to which employee complement and turnover impacted service levels throughout the tourism industry demand cycle

The second goal focused on identifying what employers believed were the key contributing factors to the labour shortage. An attempt was made to identify whether or not perceived causes of the labour force were actually contributing to the shortage, or whether some perceptions were more myth than reality.

The final goal of this research was to make recommendations to employees and industry associations to overcome the labour shortage and to assist firms in recruiting the talent that they needed to succeed.

Given that this study was descriptive and that in-depth information was required a case study approach was used. Firms were recruited through the Hotel Association of Nova Scotia (HANS). The survey had the support of the Nova Scotia Tourism Human Resource Council, an industry organization geared to providing upgrading, certification, and training support for employees across the tourism industry. A total of 30 firms qualified for inclusion in the survey by being in the tourism sector, and by being located in Halifax. After consulting with the industry to identify the information that would be most helpful in defining the labour shortage problem, and after completing a comprehensive literature review of global labour shortages in the tourism industry, a set of information needs was developed. An online questionnaire was developed for administration to HANS members that agreed to participate in the survey. The questionnaire was very detailed, requiring firms to do data mining of their own human resource systems, while also demanding time of human resource directors and/or general managers. Data was collected throughout the fall and winter of 2007/2008. The data collected described the labour shortage in the 2006-2007 tourism season from September/06 to August/07.

Seventeen firms responded. Nine firms offered both accommodations and food and beverage services, while four offered only accommodations services, and four more offered only food and beverage services without accommodations. This paper focuses only on those firms that

offered accommodations, with or without food and beverage services on-site, numbering 13 cases out of the 17 completed.

Results and Discussion

Property Size and Employee Complement

Most of the firms had 200 rooms or less. Those offering food and beverage facilities had larger capacities, with five properties having 200 rooms or more. Four firms offering food and beverage on-site had fewer than 200 rooms. All of those offering accommodations only had less than 200 rooms.

Ninety-six percent of all employees were full-time, making up the largest component of all properties studied. As would be expected, larger properties had larger employee complements. Seasonality was a factor in the number of employees hired by the firm, as would be expected, but it seemed to have little impact on full-time employment, affecting part-time employment. Average occupancy ranged from 52% to 90% with the lowest occupancy rates reported in December through January, and the strongest months reported in June through October.

An average of 75% of all employees were full-time regardless of season for larger properties (300 or more rooms), while the those with over 200 but less than 300 rooms had an average of 83% full-time workers regardless of season. Smaller firms, those with less than 200 rooms, averaged about 30% full-time employees regardless of season. This trend demonstrated that smaller properties hired fewer full-time workers as a percentage of their overall labour force, allowing them to have enhanced flexibility in deploying staff, while also saving on salaries and benefits often accorded to full-time workers.

Labour Shortages and Turnover Rates

Staff shortages, as defined by the properties, appeared to affect part-time positions more than full-time positions. The shortage of full-time staff ranged from 5% to 6% of all employees, while part-time staff shortages ranged from 5% to 29%, demonstrating much higher levels of volatility. Staff shortages were more acute in some departments than others. The most heavily impacted department appeared to be housekeeping. This shortage impacted service levels throughout the year regardless of seasonality. The second-most impacted department was guest service agent and front-desk staff. Again, this shortage appeared to be generalized across seasons. Food and beverage staff was also impacted by labour shortages, but the greatest impact appeared to be during the peak seasons, with very few unfilled positions during the low season. The results are summarized in Figure 1.

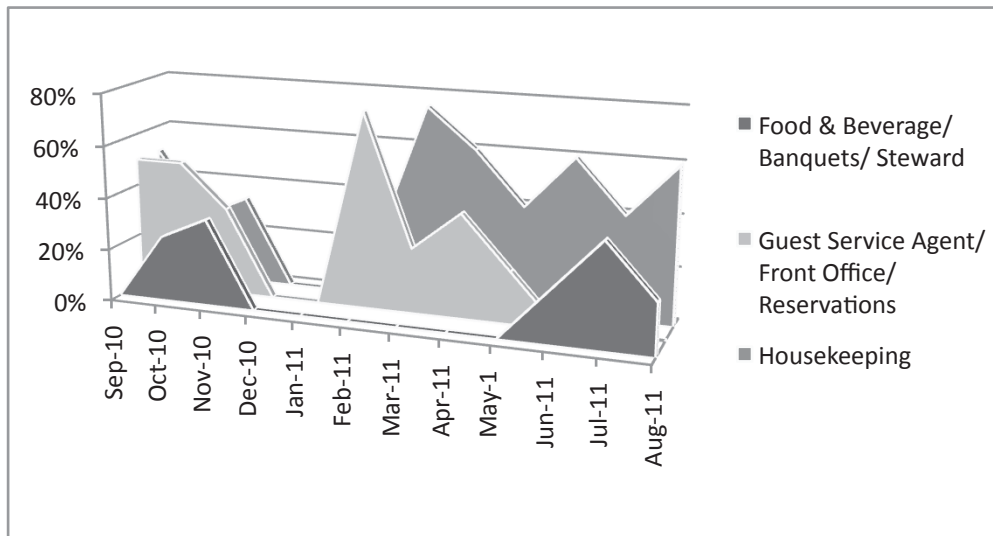


Figure 1:
Percent
of
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Shortage
by
Departm
ent

Turnover rates were also higher in the housekeeping and front office departments. At a minimum, 60% of properties were experiencing turnover rates of at least 31% in their housekeeping departments, and nearly 31% of properties had turnover rates of up to 60% in their front office positions. The highest turnover rates reported were for housekeeping, where over 15% of properties reported turnover rates of 61% to 99%.

Wages and Salaries

A continuing challenge in labour intensive sectors is the rising cost of labour relative to sales. With the vagaries of the tourism sector, such expenses continue to impact profits. This led to the need to carefully balance expenses across many cost categories. The survey investigated the starting salaries and hourly wages for a number of positions. Information was also collected regarding the salaries and wages of workers once they had completed their probationary periods. This permanent wage was then used to compare the median hourly wages of workers in selected occupations, in various Canadian cities and provinces.

The wage comparisons show consistently higher wages are being paid for guest service and front desk positions, than are being paid for housekeeping positions. This may be one reason that employers are faced with greater difficulties in staffing housekeeping positions. The statistics also reveal that higher wages are paid in larger provinces, and that wages in the metro Halifax area are generally higher than those for Nova Scotia as a whole. The results for the guest services agent and housekeeping departments are summarized in Figure 2. Comparative medians from outside of the current study are provided by the 2006 Canadian Tourism Compensation Study commissioned by the Canadian Tourism Human Resource Council and conducted by the Hay Group (2006).

Figure 2: Comparative Median Wage Range Analysis for Halifax Accommodations Firms and Other Regions

Region	Guest Service Agent Median Wage (Low/High)	Housekeeping Median Wage (Low/High)
Halifax (Current study)	\$10.60/\$11.40	\$10.11/\$11.28
Halifax Metro	9.50/9.96	10.01/10.57
Calgary	10.70/12.85	9.50/13.26
Greater Toronto Area	10.27	10.25/12.50
Nova Scotia	8.78/9.98	8.06/9.98
New Brunswick	9.22/9.63	8.50/9.00
Prince Edward Island	8.94/11.00	8.97/10.00
Newfoundland & Labrador	8.00/10.50	9.50/13.26
Alberta	12.37/13.44	11.16/12.08

There is the possibility that qualified workers are leaving the province to seek higher paying work elsewhere. Wages are higher in Alberta than they are in the East, but the difference is not enough to compensate for the higher cost of living in the province of Alberta. The differences in the cost of living between the cities of Halifax and Calgary are summarized in Figure 3. The Consumer Price Index for 2007 for the two cities was 118 for Calgary and 112 for Halifax (Statistics Canada, 2008). The results reveal that a typical household in Calgary pays more than \$11,000 more in expenses annually than a comparable household in Halifax, not including taxes, insurance, pensions, and monetary gifts or contributions. This difference is not easily met by the wages in Calgary which are less than one percent higher on the lower range median, rising to only 13% difference for the highest range median. Despite the favourable market difference, Halifax employers must acknowledge the reality that higher wages can also be found in more affordable cities across Canada, making it harder to keep qualified people in Atlantic Canada, and in Halifax.

Figure 3: Analysis of the Cost of Living in Halifax and Calgary (2005)

Average Household Expenditure	Calgary	Halifax	Difference
Total personal consumption	\$58,345	\$47,161	\$11,184

Taxes, insurance, gifts and contributions	27,208	20,729	6,479
Total expenditure	\$85,553	\$67,891	\$17,662

A different picture emerges when wages are compared for food and beverage positions for food services located inside accommodations properties. The results are summarized in Figure 4. The results reveal that Halifax area servers and cooks are paid competitive wages when compared to Canada as a whole, Nova Scotia, New Brunswick and Prince Edward Island. However, wages are less competitive when compared to those in the greater Toronto area. Cooks' wages were comparable to those paid in Calgary. Generally, hosts/hostesses in Nova Scotia were not as well paid. The results shown do not include gratuities.

It is necessary to consider managerial and executive level salaries for accommodations sector career paths in order to evaluate the remuneration in the field. While managerial salaries were not considered in the survey conducted, information on median salaries was available from the 2006 Tourism Compensation Study. This information for various parts of Canada, across various positions, is summarized in Figure 5. The results revealed that Nova Scotia is competitive for many managerial positions. The Nova Scotia median, and that of Halifax in particular, was higher for General Managers than the Canadian median. However, managers and executives living in the larger cities, including the greater Toronto area, are among the highest paid. Halifax metro leads the way in Atlantic Canada, but does not have competitive salaries with Calgary or the greater Toronto area. However, given that the cost of living is higher in those particular cities, Halifax offers comparable salaries overall. This is less true of Nova Scotia, which offers the highest salaries in Atlantic Canada, but not high enough to attract talent from outside of Atlantic Canada, or possibly, to attract and retain homegrown talent. This may be a disincentive for highly qualified people, including potential innovators and industry leaders, to stay in Halifax.

Figure 4: Comparative Median Wage Range Analysis for Food and Beverage Operations Inside Halifax Accommodations Firms and Other Regions

Region	Server Median Wage (Low/High)	Cook Median Wage (Low/High)	Host/Hostess Median Wage (Low/High)
Halifax (Current study)	\$9.15/\$10.52	\$10.00/\$14.27	\$7.75/\$10.59
Halifax Metro	8.13/9.61	9.00/12.70	7.75/8.50
Calgary	8.06/8.70	11.73/15.15	na
Greater Toronto Area	6.76/9.25	9.88/16.95	8.00/12.00
Nova Scotia	7.75/9.45	8.67/12.50	9.32/9.74
New Brunswick	7.00/7.70	8.77/10.61	na
Prince Edward Island	7.58/8.35	8.84/9.68	na
Newfoundland & Labrador	na	na	na
Alberta	7.78/8.52	11.75/14.30	10.17/11.95

Figure 5: Managerial and Executive Salaries in the Accommodations Sector (Total Cash Median including Bonuses)

Region	Accommodations Service Manager	Catering Manager	Director of Sales and Marketing	Executive Chef	Executive House-keeper	Food and Beverage Manager	General Manager
Canada	\$43,048	\$40,750	\$64,334	\$56,000	\$39,039	\$50,000	\$70,892
NS	38,000	34,122	59,750	55,000	35,878	42,228	75,000
Halifax Metro	43,374	35,149	59,750	56,000	38,692	47,475	77,500
NB	33,000	33,500	62,000	45,000	36,850	40,558	60,000
PE	27,000	na	na	42,555	25,350	30,500	50,000
NL	35,762	na	50,750	37,850	na	na	57,625
AL	43,676	45,928	72,727	69,969	45,953	53,721	90,000
Calgary	53,894	45,300	87,073	58,057	48,000	46,200	98,000
Greater Toronto Area	51,000	48,667	92,000	68,000	56,546	50,000	109,000

Employers' Perceptions of Factors Impacting Labour Supply

Respondents were presented with a series of eight statements that summarized the views that many hold towards the causes and issues impacting labour supply in the tourism and hospitality management sector. The statements covered three critical issues impacting the tourism industry: overall image, labour pool, and working conditions. Respondents were asked to indicate if they agreed with each of the statements using a five-point scale: 1) Strongly agree, 2) Agree, 3) Neutral, 4) Disagree, 5) Strongly disagree. There is some inconsistency in the ratings of the statements, which demonstrates that there is a lack of agreement among employers regarding what are the root causes, or enablers, of the labour shortage. This lack of consensus thwarts the abilities of organizations to deal proactively with labour supply issues. There is one issue with which all employers agree, and that is the belief that jobs within the hospitality sector are simply not attractive to potential employees.

Industry image issues were measured by two statements. The first statement, "Jobs within the hospitality sector are not attractive to many potential employees" struck a chord with respondents with 94% agreeing with the statement and 6% remaining neutral. The second statement, "It is hard to make a career path from entry level jobs in the industry" was agreed to by 65% of the respondents, while 18% disagreed, and 18% were neutral. This reveals that while they believe that hospitality-related jobs are not inviting to potential employees, they personally believe that it is possible to have a career path from entry level jobs. Possibly, this reality should be communicated to potential employees, and those seeking career information. The industry suffers from a negative image that is also enhanced by, "The lack of knowledge about the industry's career ladder and ladders among parents, teachers, guidance counselors and youth" (US Department of Labour, 2006, p. 7).

Three statements focused on labour pool issues. The first statement, that "there are not enough qualified employees graduating from local universities or community colleges" was

agreed to by 59% of respondents, while 18% disagreed and 24% remained neutral. The next statement, “many potential employees are leaving the province to seek work” was agreed to by 82% of respondents, with 18% remaining neutral and no disagreement. The final statement, “there just aren’t enough employees to go around – regardless of pay and benefits” was agreed to by 65% of respondents. Twelve percent disagreed and 24% remained neutral. These responses show some soft agreement (in the 59% to 65% range) with the exception of labour migration, indicating that they did appreciate that there is a bona fide labour shortage.

Occasionally, working conditions can be detrimental to attracting employees. Three statements addressed working conditions. The first statement, “businesses cannot pay competitive wages to keep employees in the industry” was agreed to by 82% of the respondents, with 6% disagreeing and 12% remaining neutral. The next statement focusing on working conditions was, “lack of flexibility in work hours makes jobs less attractive to potential job candidates.” This statement was agreed to by 65% of respondents, while 24% disagreed and 12% remained neutral. The last statement, “it is difficult to compete locally in terms of pay and benefits” was agreed to by 71% of respondents, with 6% disagreeing and 24% remaining neutral.

These results demonstrate that most employers realize that something needs to be done to improve working conditions in the industry to reduce turnover and to attract qualified talent. These statements focus primarily on remuneration, benefits and work hours. By far, the biggest issue agreed to by respondents was the inability to pay competitive wages to keep employees in the industry. However, these issues did not focus greatly on the softer side of the job: the part of the job that rewards the human spirit and encourages personal growth. There is evidence that much more is needed to make a career attractive to qualified individuals. Studies of turnover have addressed these issues in different ways. There are three categories of turnover which particularly affect the tourism & hospitality industry. The first is systemic, inherent to the industry and to individual characteristics within an enterprise. This includes turnover caused by seasonality, end of employment contracts, return to school, worker retirements, and the like. Systemic causes of turnover are tough, if not impossible, to change in the short term. Fortunately, most of these can be forecasted, and their consequences anticipated. The second category includes those reasons for leaving which are less than palatable to management and less easy to detect, but perhaps more controllable. Examples include better prospects elsewhere, conflict with supervisors or colleagues, better pay or benefits, lack of job security, lack of advancement opportunities, and so on. A third turnover category is influenced by environmental factors. These factors include public transportation, availability of day-care, and lack of affordable housing. A Cornell University Hotel School Research Review revealed that the average cost of front desk turnover alone was 30% of salary, with an added loss of productivity of 20% for 16 days among remaining employees following the loss of a coworker (May, 2006).

When trying to attract qualified labour, particularly during a labour shortage, there is also a need to understand how careers differ from jobs, if in fact such a distinction really exists. One study calls into question that assumption. In 2005, the Center for Hospitality Research at Cornell University’s School of Hotel Administration surveyed graduates of their School of Hotel Administration to assess what hospitality professionals want from their jobs. Notwithstanding that these are university graduates who might have loftier motivations than their hourly counterparts, the results are relevant, particularly for supervisory/managerial associates. The resulting themes from the Cornell study revealed that graduates did not expect different things from career positions or jobs (Taylor & Walsh, 2005). The results are summarized in Figure 6. It

is particularly interesting that, for each question, most of the eight responses were of a self-actualization or learning nature, and only one of a compensatory nature. The similarity in the listings and the ratings between what students sought in a job, as well as in a career, cannot be overlooked. These findings demonstrate that personal growth and development, challenge, the opportunity to contribute, and financial success, are all important even when attracting less qualified staff or part-time employees.

In another surprising study in 2001, hourly employees were asked to rank 10 items in order of importance that they wanted from their jobs (Neibrugge, 2001). Their employers were then asked to guess how they thought their employees would rank the same items. The results, shown in Figure 7, were surprising. Not only was there no synchronisation between each ranking, but the employee's top three were all in relatively "soft" items, probably in areas which would not cost a business much to satisfy.

A survey conducted by Leeds Metropolitan University on hospitality employees in the "English Riviera" in 2004 produced a different profile, albeit with some common features. Figure 8 shows the average scores of factors contributing to staff turnover based on the following scale: 1) Not at all important, to 10) Extremely important.

Figure 6. Career and Job Aspirations (Taylor & Walsh, 2005)

What do they want from their careers?	What do they want from their jobs?
Growth opportunities (23.4%)	Growth opportunities (16.4%)
To learn and be challenged (15.5%)	Challenging job (13.2%)
To make a difference (9.2%)	Fair compensation (11.5%)
Financial success (7%)	Learning opportunities/experience (10%)
Personal satisfaction (7%)	Satisfaction (7.6%)
Joy in the work (7%)	Work-life balance (7.3%)
Work-life balance (3.8%)	Joy in the work (7.3%)
Independence (3.8%)	To accomplish something (3.1%)

Figure 7: Employers' and Employees' Rankings of Important Job Attributes (Niebrugge, 2001)

Employees' Rankings	Item	Employers' Rankings
1	Interesting Work	5
2	Appreciation and Recognition	8
3	Feeling "in on things"	10
4	Job Security	2
5	Good Wages	1
6	Promotion/Growth	3
7	Good Working Conditions	4
8	Personal Loyalty	6
9	Tactful Discipline	7
10	Sympathetic Help with Problems	9

Figure 8: Ranking of Factors Contributing to Staff Turnover

Item	Employers' Rankings
Low Pay	7.5
Long/Disagreeable work hours	5.8
Unpleasant interpersonal environment	5.1
Personal	5.1
Unsuited to tasks involved	5.0
Lack of career prospects	4.8
Unpleasant job role	4.8
Low Pay	7.5

This survey produced some more predictable results, with the traditional “low pay” mantra being leveled at the industry. However, some of the factors would inevitably be disquieting to the concerned manager. Clearly, the factors and rankings in all surveys will not hold true for all businesses, all locations, or all situations at all times. It is therefore vital and incumbent on managers to stay up-to-date on the priorities of their employees.

Conclusions and Recommendations

The labour force study of Halifax accommodations firms revealed that while the full-time employee complement is less stressed by turnover and labour supply than the part-time complement, there is cause for concern. The greatest areas of labour shortage are in front office and housekeeping, two very critical departments that have a direct impact on customer service.

Based on this analysis the following recruiting and retention strategies are recommended:

1. Do research to gain current information and enhance managerial understanding of labour force and workplace issues: The industry is aware of the most pressing issues, but there are gaps in areas that management should be aware of in dealing with the labour shortage. The labour shortage is anticipated to continue for many years. As a result, creative recruiting and retention strategies are required in order to move the industry forward and to do away with myths and assumptions.
2. Perception is reality and a positive industry image must be created and sold: The image of the hospitality industry constantly needs to be sold to change the perception of low wages and dead end jobs. It is the challenge of the industry on a daily basis to constantly improve the image – “change the organizational culture inside companies through job rotations and continual learning to counter the negative messages coming from within the industry itself” (US Department of Labor, 2006, p. V).
3. Financial concerns are real, but not insurmountable: Another key consideration in the area of recruiting is understanding the real picture of wages and comparables in other regions. While there is some outmigration to larger cities there is enough competition in Atlantic Canada to make attracting employees challenging for Halifax firms. While cost of living is a concern, not all employees who travel outside of Atlantic Canada are aware of the cost of living challenges and how their lifestyles will be affected. Despite this, it is difficult for local properties to effectively communicate that local wages can deliver a better standard of living even if they are lower than those of national competitors.
4. Professional development and upgrading for line supervisors and human resource managers is necessary: People skills are needed both inside and outside of the

organization. Such training and education will serve to improve operational decisions, particularly those related to managing the human resource.

5. The workplace issues must be resolved to eliminate labour force issues: The most critical shortage is in the housekeeping department. This department is rife with irritable working conditions, harsh expectations and the potential for employee abuse by customers. The job must be elevated and professionalized by recruiting the best people and providing them with training and support. Improving pay and benefits must also be considered as a means to this end.

Much remains to be done to obtain a clear and comprehensive picture of trends impacting today's hospitality sector. Strategies must be developed to deal with volatility in the sector, and to better assist organizations as they strive to meet new challenges. Future research should focus on the demand side of the labour force issue, rather than the supply side. Supply side issues, such as departments most heavily affected, recruiting sources, pay and benefits are being well documented. What is needed is more of a focus on the needs and expectations of Generation X and Y workers and baby boomers who are anticipating late retirement. How do they seek information about career choices and opportunities? How does work define them, and how do they incorporate careers and lifestyle choices? What do they expect in terms of pay and benefits, and what would it take to get them to stay in Nova Scotia and to seek local jobs? Research must address both workers who have remained in Nova Scotia, as well as those who have left in search of better opportunities. Nova Scotia's employers are in the unique position of being able to attract loyal Maritimers back home. All that is needed is a recipe that appeals to their tastes and goals.

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**CONTRAT PSYCHOLOGIQUE ET ENGAGEMENT ORGANISATIONNEL:
OBSERVATIONS EMPIRIQUES SUR L'EXPÉRIENCE DE LA RÉCIPROCITÉ DANS
LE SECTEUR TERTIAIRE**

Le contrat psychologique est devenu ces dernières années une notion importante dans tout système de gestion des ressources humaines. Basée principalement sur une recension de données qualitatives, cette communication vise à identifier certains facteurs déterminant l'érosion du contrat psychologique et d'envisager ses impacts sur l'engagement organisationnel des employés par le prisme de leur interprétation situationnelle.

Ces dernières décennies, l'intérêt pour la question de la responsabilité sociale des entreprises a amené les gestionnaires à se concentrer non plus seulement sur la dimension économique de leurs organisations mais aussi sur d'autres aspects liés aux questions environnementales et sociales. Ainsi, dans un souci d'intégrer de façon dynamique les ressources humaines à la performance de l'organisation dans un contexte très concurrentiel, les gestionnaires sont de plus en plus préoccupés par la responsabilité sociale de leurs entreprises envers leurs employés (Ramboarisata et *al.*, 2008).

Dans cet ordre d'idées, le concept de contrat psychologique a reçu ces dernières années une attention soutenue tant de la part des praticiens que des chercheurs en gestion des ressources humaines (GRH). Définie comme les croyances qu'ont un individu et son employeur au sujet des termes de leur échange (Dabos et Rousseau, 2004), la notion de contrat psychologique souligne l'importance que peuvent avoir les perceptions des employés à l'égard de l'équité et de la réciprocité dans la détermination de leur volonté à s'engager ou non dans la relation avec leur employeur. Ainsi, l'analyse du contrat psychologique peut contribuer à une meilleure compréhension des comportements au travail en vue d'identifier les fondements de l'engagement organisationnel.

Jusqu'à maintenant, les études s'intéressant à la notion de contrat psychologique ont mis en lumière les divers antécédents et conséquences d'un déficit de réciprocité dans ce type d'ententes (Dabos et Rousseau, 2004; Guerrero, 2003; Robinson et Morrison, 2000). Toutefois, la

majorité de ces études étaient de nature quantitative et leur objectif consistait à construire des modèles relationnels statistiques ou à valider des instruments de mesure quantitative de cette notion (Guerrero, 2005). Bien que ce genre de démarche s'est avérée grandement utile pour identifier les causes et les effets relatifs aux enjeux du contrat psychologique, peu d'études ont cherché à comprendre le processus expérientiel d'un déficit de réciprocité dans la relation d'emploi tel que décrit dans le discours subjectif des employés afin de saisir qualitativement la nature de leur représentation situationnelle dans ce genre d'expérience.

Basée principalement sur une recension de données qualitatives dans un centre d'appel, cette communication vise à pallier cette lacune. Elle propose de saisir les fondements de l'expérience de travail des employés afin d'identifier leurs perceptions au sujet de l'évolution de leur contrat psychologique, et ce, dans un contexte d'innovation organisationnelle. En outre, les impacts de cette situation sur l'engagement organisationnel des salariés seront aussi abordés. Cette démarche contribuera à l'élargissement des connaissances (Burawoy, 1998) relatives aux enjeux du contrat psychologique puisqu'elle permettra une meilleure compréhension de leur représentation situationnelle à l'égard de leur expérience de la réciprocité à partir de leur discours. De plus, compte tenu que les études sur les centres d'appels ont plus souvent qu'autrement porté sur les questions du contrôle managérial et de leurs impacts sur les agents de service (Russell, 2008; Schalk et Van Rijckevorsel, 2007), il est plausible d'estimer que ce travail permettra certaines avancées sur le plan des connaissances au sujet de l'évolution du contrat psychologique en soi dans ces milieux de travail.

Dans cette communication, les notions de contrat psychologique et d'engagement organisationnel seront d'abord présentées. Ensuite, après avoir décrit le terrain d'enquête, ce travail abordera les grandes lignes relatives à l'expérience de la réciprocité des employés par le prisme de leur représentation situationnelle. Enfin, une analyse des enjeux reliés à cette expérience sera présentée afin de souligner de quelle manière peut être vécue l'évolution du contrat psychologique.

Cadre conceptuel

La notion d'engagement organisationnel

L'engagement organisationnel se définit comme « a psychological link between the employee and his or her organization that makes it less likely that the employee will voluntarily leave the organization » (Allen et Meyer, 1996 : 252). Cette notion a été maintes fois étudiée par les chercheurs en raison de son pouvoir prédictif sur des variables telles que l'intention ou non de quitter, la citoyenneté organisationnelle, la performance, etc. (Vandenberghe et *al.*, 2009). Ces études ont permis la construction de divers modèles explicatifs de l'engagement organisationnel dont celui de Meyer et Allen (1997) qui met en lumière trois formes d'engagement.

Premièrement, l'engagement affectif constitue la forme d'engagement qui a été la plus étudiée par la communauté scientifique. Elle implique un attachement émotif du salarié envers l'organisation en vertu du caractère réciproque et mutuel de la relation d'emploi (Meyer et Allen,

1997). Ainsi, dans un contexte d'engagement affectif, l'employé s'engagera envers son employeur puisqu'il perçoit qu'il est traité équitablement par l'organisation. Dans un contexte de contrat psychologique idéal où les obligations et les attentes des acteurs en présence sont en équilibre avec leurs comportements et leurs attitudes, il demeure plausible de croire que l'engagement des employés sera de forme affective.

Deuxièmement, l'engagement normatif se caractérise par l'idée que l'individu demeure dans l'organisation puisqu'il ressent un sentiment d'obligation morale envers celle-ci. La loyauté du salarié dans cette forme d'engagement repose sur « un ensemble de pressions normatives internalisées » (Vandenberghe et *al.*, 2009) relatives par exemple à ses traits de personnalité, à ses valeurs personnelles ou à son expérience de socialisation. Dans un contexte d'engagement normatif, l'individu considère qu'il ne peut quitter l'organisation dans laquelle il évolue puisque cette décision entraînerait chez lui, à toutes fins pratiques, des remords de conscience.

Troisièmement, l'engagement de continuité se distingue par son aspect instrumental relatif à l'idée que l'individu demeure dans l'organisation puisque les risques associés au fait de la quitter sont trop élevés (Allen et Meyer, 1996). La loyauté de l'employé dans cette forme d'engagement repose sur un calcul impliquant une double évaluation : d'une part, un jugement sur le degré d'équilibre entre les efforts fournis et les rétributions objectives et symboliques et, d'autre part, une évaluation des impacts sur l'individu de son départ de l'organisation. Ainsi, l'engagement organisationnel d'un employé sera de continuité ou instrumental s'il estime, après avoir pris conscience d'un déséquilibre désavantageux pour lui entre ses efforts et les rétributions de l'employeur, qu'un départ de l'organisation s'avérerait risqué en vertu d'un manque d'alternatives d'emploi ou compte tenu des coûts trop élevés relatifs à la rupture du lien d'emploi (en termes de salaires, d'avantages ou d'adaptation à un nouveau milieu de travail). Dans le contexte actuel où les organisations tentent de faire en sorte que leurs ressources humaines représentent leur atout le plus précieux pour augmenter leur niveau de concurrence sur le marché mondial, l'engagement de continuité peut être considéré comme une menace à leur succès.

La notion de contrat psychologique

La notion de contrat psychologique a véritablement fait son apparition dans les années 1960. D'abord, les observations d'Argyris (1960) portant sur les relations entre les ouvriers et leurs contremaîtres ont mis en lumière que certains aspects de nature psychologique pouvaient pallier aux lacunes caractérisant tout contrat formel ou explicite régissant une relation d'emploi. Ensuite, Levinson (1962) a approfondi la notion en utilisant le terme d'attentes mutuelles et en démontrant notamment que les organisations avaient des obligations envers le bien-être émotionnel de leurs employés. Enfin, Schein (1965) a mis en relief le caractère interactif et relationnel du contrat psychologique en démontrant que son application reposait sur l'équilibre des attentes et des contributions des individus et de l'organisation.

Malgré l'avancée des connaissances attribuable à ces travaux, c'est Rousseau (1990) qui parviendra à préciser cette notion en la définissant de la façon suivante :

« Psychological contracts are an individual's beliefs regarding reciprocal obligations. Beliefs become contractual when the individual believes that he or she owes the employer certain contributions (...) in return for certain inducements (...). As perceived obligations, psychological contracts differ from the more general concept of expectations in that contracts are promissory and reciprocal » (Rousseau, 1990 : 390).

Le contrat psychologique constitue donc un ensemble de croyances que l'employé entretient à l'égard des promesses faites par l'employeur. Cette définition fait abstraction des obligations du salarié envers l'employeur. Dans ces conditions, certains auteurs ont remis en question cette manière d'appréhender la notion de contrat psychologique en cherchant à réhabiliter ses dimensions relatives à la mutualité et à la réciprocité. Ainsi, ce concept pourrait se définir comme « les croyances à l'égard des conditions d'un accord d'échange réciproque entre l'individu et les représentants de l'entreprise » (Guerrero, 2003 : 1342) et serait constitué non seulement de promesses réelles et explicites mais aussi d'attentes subjectives et tacites relevant d'obligations perçues par les salariés (Guerrero, 2003; Morrisson et Robinson, 1997).

Selon Dabos et Rousseau (2004), il existe trois grands types de contrat psychologique, non exclusifs l'un à l'autre. Premièrement, le contrat transactionnel concerne une relation d'emploi à court terme et d'une durée limitée dont les termes de l'échange reposent exclusivement sur des considérations économiques. Cette typologie se caractérise par un engagement mutuel plutôt faible des deux parties. Deuxièmement, le contrat relationnel se caractérise par un haut niveau d'engagement mutuel des parties en présence puisqu'il s'articule autour de la confiance et de la loyauté réciproque. Ce type de contrat comporte donc une dimension affective particulièrement appréciable. Troisièmement, le contrat hybride ou équilibré se situe entre les deux typologies précédentes. Il implique que les parties en présence s'engagent mutuellement et affectivement à long terme envers les obligations du contrat psychologique tout en étant ouverts à la flexibilisation de cette entente compte tenu que l'organisation contemporaine doit constamment adapter ses structures à son environnement externe instable.

Il est à noter que l'analyse de la relation d'emploi par le prisme du contrat psychologique demeure une opération très complexe puisqu'elle repose sur les perceptions subjectives des individus. D'un côté, les dirigeants d'une organisation pourraient prétendre que les engagements envers leurs employés ont été respectés. D'un autre côté, les employés pourraient prétendre le contraire en vertu de l'analyse situationnelle de nature subjective qu'ils auraient effectuée. Voilà pourquoi il importe pour tout chercheur s'intéressant à cette question de chercher à comprendre ces interprétations et ces perceptions des salariés à l'aide d'instruments non seulement quantitatifs mais aussi qualitatifs afin d'entrer littéralement dans leur monde interprétatif. C'est d'ailleurs ce que propose ce travail en cherchant à saisir le contexte expérientiel dans lequel peut évoluer un contrat psychologique ainsi qu'à identifier les impacts de cette situation sur l'engagement organisationnel des salariés.

Présentation de l'étude de cas ethnographique

Cueillette des données

L'enquête effectuée est une étude de cas ethnographique. Elle a été réalisée dans un centre d'appel montréalais appartenant à une firme canadienne spécialisée dans le domaine des communications. Elle visait à saisir l'interprétation situationnelle des acteurs en lien d'emploi au sein de cette organisation au sujet de leur expérience de travail. La stratégie méthodologique consistait à littéralement « entrer dans le monde » des agents de service pour expliquer leurs comportements à partir d'une meilleure compréhension de leurs perceptions au sujet de leur expérience de travail.

En ce sens, deux séries d'entrevues semi-dirigées et enregistrées, d'une durée d'environ 45 minutes chacune, ont été effectuées. Une première phase, composée d'entretiens avec le vice-président du centre d'appel, 3 directeurs, 3 formateurs, 11 chefs d'équipe et 46 agents de service, a été réalisée. Ces entretiens s'articulaient principalement autour de la question de la performance au centre d'appel dans un contexte d'innovation organisationnelle. À l'issue de cette phase, certains problèmes relatifs à l'engagement des employés ont été constatés. À cet égard, après avoir obtenu l'autorisation de la direction, nous avons effectué une deuxième phase de recherche afin d'identifier les tenants et aboutissants de cette problématique et mieux comprendre ce qui pouvait faire varier leur degré d'engagement. Cette seconde phase a été réalisée à l'aide de trois techniques : des entretiens avec 1 directeur, 18 chefs d'équipe et 45 agents ; des séances d'observation directe non-participante dans les équipes de travail et dans celle chargée de l'évaluation de la qualité des appels ; la distribution d'un questionnaire auprès de tous les conseillers du centre d'appel auquel ont répondu 51,5% d'entre eux.

Les principes de la théorisation ancrée (Glaser et Strauss, 1967) ont grandement inspiré l'échantillonnage théorique et l'analyse des données recueillies lors des entretiens qualitatifs. Cette méthode implique une interaction circulaire entre la collecte des données et leur analyse (Guillemette, 2006) permettant un examen en continu des données, un raffinement de l'échantillonnage selon celles-ci et la validation des informations recueillies auprès des participants.

Lors de la première phase, nous avons choisi des répondants devant composer quotidiennement avec l'innovation pour nous éclairer sur la question de la performance dans ce contexte. D'une part, l'analyse des données recueillies a consisté à effectuer une codification initiale selon les concepts fondamentaux de l'étude tels que l'innovation, la performance, les compétences, la technologie, etc. D'autre part, ces données ont aussi été l'objet d'une codification centrale (*axial coding*) établissant les relations de dépendance, de ressemblance ou d'opposition entre ces concepts. Nous avons alors constaté que les agents pleinement qualifiés vivaient l'implantation de l'innovation sous plusieurs perspectives puisque l'ensemble de leurs tâches consistaient autant à activer la ligne téléphonique des clients qu'à résoudre une grande diversité de leurs problèmes ou, parfois même, à les fidéliser. Des entretiens avec plusieurs agents pleinement qualifiés ont été alors planifiés, notamment en vue de la seconde phase, afin d'obtenir des informations détaillées sur le phénomène étudié.

Les données recueillies lors de cette seconde phase ont été aussi l'objet d'une codification initiale basée sur d'autres concepts tels que l'engagement, l'évolution de la relation d'emploi (et du contrat psychologique), la nature du travail, les attentes au moment de l'embauche, les différences inter-générationnelles, etc. Ensuite, nous avons procédé à une codification centrale établissant des relations entre ces divers concepts. Cette démarche a permis de mettre davantage en lumière l'interprétation situationnelle des agents en contexte de lien d'emploi et de comprendre que leur niveau d'engagement pouvait varier en fonction de leur ancienneté et de l'évolution de leur expérience de travail. Enfin, nous avons effectué une codification sélective de l'ensemble de nos données consistant à les intégrer dans un modèle explicatif du phénomène à l'étude basé sur une compréhension de l'évolution de leur relation d'emploi basée sur leurs perceptions à l'égard de divers éléments relatifs aux décisions des dirigeants en matière de gestion du personnel.

Présentation de l'entreprise et du travail des agents

L'organisation visitée est une firme canadienne évoluant dans le domaine des communications. Elle dispose de plusieurs antennes au pays en vertu des centres d'appels qu'elle y a implantés, dont celui de Montréal. Dans ce centre d'appel, les agents sont regroupés dans une trentaine d'équipes composées de 15 à 18 membres chacune. Eu égard aux trois types d'appels entrants, la direction a instauré trois niveaux de qualification pour les conseillers : les agents de « base » affairés aux activations, les « pleinement qualifiés » s'occupant des activations, des demandes d'informations et des divers problèmes amenés par la clientèle et les « avancés » se consacrant surtout à la rétention des clients. Dans ce modèle, les agents de « base » effectuent un travail standardisé ce qui limite leur degré d'autonomie. Les agents « avancés » disposent d'une plus grande marge de manoeuvre, leur jugement décisionnel et leur créativité étant davantage sollicités. Au centre de ces positions se retrouvent les agents « pleinement qualifiés » disposant d'une certaine marge de manoeuvre dans leur travail.

Globalement, les agents effectuent un travail surtout individuel. Ils sont disposés en rangées, isolés de leurs collègues par une paroi. Ils sont en relation téléphonique presque constamment, car le système automatisé de distribution des appels veille à diriger immédiatement ceux en attente vers les agents disponibles. Ils utilisent un ordinateur les aidant à parcourir les dossiers des clients ou à utiliser les logiciels mis à leur disposition. Une console signale leur temps d'appel, le nombre d'agents disponibles dans le centre d'appel, le « niveau de service »¹ et le nombre d'appels en attente.

Le travail des agents de service dans cette organisation se caractérise donc par son aspect individuel et par une rationalisation industrielle de la relation de service (Buscatto, 2002; Bain et al., 2002). Ils doivent respecter plusieurs normes objectives concernant la durée moyenne des appels et les niveaux d'adhésion et de conformité. De plus, au moment de nos observations empiriques, ils devaient composer avec l'implantation d'un nouveau système d'évaluation de la

¹ Le niveau de service est le pourcentage d'appels répondus en 20 secondes. L'objectif standard est de répondre à 80% des appels en 20 secondes. Pour y arriver, on vise une moyenne d'environ 500 secondes par appel.

qualité de leurs appels consistant à enregistrer, à distance et à leur insu, non seulement l'interaction verbale entre eux et le client mais aussi l'interaction technique entre eux et leur ordinateur. Cette nouvelle pratique permettait aux dirigeants de vérifier si les agents utilisaient les logiciels d'application pertinents selon les procédures prescrites pour résoudre les problèmes des clients. Elle s'avérait particulièrement puissante puisqu'elle pénétrait dans la subjectivité des agents et leur zone de créativité, de sorte qu'était palpable un mécontentement significatif de leur part lors de notre passage. La prochaine section présentera l'évolution de leurs perceptions à l'égard de leur relation d'emploi et du contrat psychologique les liant à leur employeur dans le contexte de cette innovation organisationnelle.

L'évolution des perceptions des agents de service à l'égard de leur relation d'emploi : l'expérience d'un contrat psychologique en voie d'érosion

L'engagement organisationnel : une définition par les acteurs

Comme dans la plupart des entreprises contemporaines, les gestionnaires du centre d'appel à l'étude désirent obtenir un engagement organisationnel soutenu de la part de leurs salariés afin de doter la production du service offert d'une valeur ajoutée permettant éventuellement à l'organisation de se démarquer sur le plan de la concurrence.

D'un côté, les gestionnaires suggèrent une définition de la notion d'engagement composée de trois principales caractéristiques. La première se rapporte au dépassement des préoccupations individuelles. Elle tend à reléguer au second plan les besoins ou les intérêts personnels des individus au profit de ceux de l'entreprise. La seconde caractéristique a trait à la fierté d'appartenance à l'entreprise. Selon les gestionnaires, le développement de cette valeur ne peut qu'amener les employés à cultiver une volonté croissante à se dépasser au profit d'une entité organisationnelle qui, idéalement, tend à les placer dans les meilleures conditions possibles. La troisième caractéristique concerne le devoir de responsabilisation des conseillers. C'est qu'au moment de l'implantation de l'innovation organisationnelle, les gestionnaires misaient énormément sur l'autoresponsabilisation des agents de service afin qu'ils prennent en mains les affaires de l'organisation. Par cette sollicitation, l'agent de service est appelé à développer un sens accru du devoir à l'égard de l'organisation et à démontrer ses capacités d'initiative. Le superviseur peut le guider ou l'appuyer dans cette démarche. Mais le simple fait d'acquiescer aux ordres ne suffit pas aux yeux de la direction. Il faut aller au-delà.

D'un autre côté, les conseillers indiquent eux aussi une préoccupation des intérêts de l'entreprise dans leur définition de l'engagement organisationnel. En fait, le sentiment d'appartenance, la foi en la mission de la firme, la fidélité et le partenariat constituent des propriétés rattachées à leur conception de l'engagement, à tout le moins lorsqu'ils définissent la notion dans un sens idéal. Toutefois, lorsque les conseillers sont invités à décrire l'engagement organisationnel en se rapportant à l'interprétation de leur expérience de travail au centre d'appel, ils mettent en évidence toute l'importance accordée à la question de la réciprocité dans leur relation d'emploi. Dans leur vision du monde, ils considèrent que ce type d'engagement, pour être effectif, doit s'inscrire dans une dynamique relationnelle à double sens impliquant non

seulement le conseiller mais aussi l'employeur. Le conseiller s'attend alors à une forme de reconnaissance de la part de l'employeur, à un engagement de celui-ci envers son employé, non seulement sur le plan de la rémunération mais également sur celui des moyens à lui donner pour qu'il parvienne à effectuer efficacement ses tâches :

« Moi le « commitment », c'est des deux côtés, autant de l'employé que de l'employeur. Le « commitment » c'est que je vais me donner à fond pour un employeur qui va se donner à fond pour moi. C'est un échange de bons services entre employeur et employés. C'est ce qui te permet de faire ton travail convenablement tout en étant motivé. »
(Entrevue avec un agent de service, phase 2, E28)

Il fut constaté précédemment que dans la conception des gestionnaires, l'aspect de la réciprocité avait aussi une certaine importance. Or, dans la représentation de la situation qu'ils expérimentent, les conseillers considèrent que le discours gestionnaire à cet égard doit s'actualiser dans le cadre de leur expérience de travail, ce qui ne semblait pas être le cas pour ces employés.

L'innovation organisationnelle et l'appel à la responsabilisation

L'appel à la responsabilisation lancé par les gestionnaires visait à accroître l'engagement organisationnel de la part des conseillers et il s'inscrivait dans la perspective d'implantation d'une innovation organisationnelle qui allait avoir certains effets notamment sur le rôle et le travail de ces employés. Se traduisant par l'implantation d'une nouvelle façon d'évaluer la performance qualitative des conseillers, cette innovation consistait à enregistrer à distance, à l'aide d'un logiciel informatique, 10 appels mensuels pour chacun des conseillers en poste. Ces appels, choisis au hasard par l'ordinateur, étaient évalués par une équipe d'anciens conseillers à partir de divers critères standardisés. Ce nouveau système de surveillance électronique était particulièrement puissant puisqu'il enregistrait simultanément l'interaction verbale entre le client et le conseiller et aussi l'interaction technique entre ce dernier et son ordinateur, de sorte que le contrôle managérial pénétrait alors dans les façons de faire des agents de service. Ce nouveau procédé d'évaluation permettait à l'équipe-qualité de juger si le conseiller avait choisi ou non la bonne démarche pour répondre à la requête du client ou pour résoudre son problème, et ce, à partir d'un certain nombre de critères d'évaluation².

L'innovation misait donc énormément sur le devoir de responsabilisation des conseillers. Elle s'appuyait sur la modification de leurs attitudes et comportements en ligne en vue de modifier le processus de la prise des appels. Ainsi, la direction estimait qu'il serait possible d'abaisser la durée moyenne des appels non pas en travaillant directement sur des objectifs quantitatifs à atteindre mais plutôt en mettant l'accent sur les aspects qualitatifs de l'appel en vue d'une amélioration quantitative de la performance. Cette démarche s'articulait autour de deux idées fondamentales : celle du « premier appel, dernier appel », signifiant que les conseillers doivent

² Les résultats de ces évaluations avaient par la suite des répercussions sur les possibilités d'avancement des conseillers et sur leurs bonus trimestriels.

solutionner définitivement les problèmes présentés par la clientèle dès le premier appel, ainsi que celle « d'aller directement au point », consistant à amener les conseillers à aller directement au point amené par le client, de ne pas lui offrir des solutions se situant en périphérie de la raison de son appel.

En somme, l'appel à la responsabilisation des conseillers et l'introduction de la nouvelle façon d'évaluer leur performance ont généré certains effets sur leur travail puisque cette démarche met l'emphase sur leurs façons de travailler. Les prochains paragraphes mettront en lumière les impacts de cette nouvelle façon de faire sur leur expérience de la réciprocité.

La perception des conseillers au sujet de leur expérience de la réciprocité

Dans l'objectif d'identifier les fondements de l'évolution de la relation d'emploi et du contrat psychologique unissant les conseillers à leur employeur ainsi que pour mieux comprendre la nature de leur engagement organisationnel, cette section mettra en relief leurs perceptions au sujet de certains aspects relatifs à la nature de leur travail eu égard à l'application de l'innovation organisationnelle décrite précédemment.

Le « coaching ». L'un des volets de l'innovation concernait le «coaching» et prévoyait que les gestionnaires renouvellent la nature de cette activité afin d'accompagner les conseillers dans leur démarche d'auto-responsabilisation. Dans l'optique des gestionnaires, le «coaching» renouvelé comporte trois caractéristiques importantes. La première concerne les comportements à corriger. À cet effet, les chefs d'équipe ne doivent plus présenter les résultats quantitatifs de la performance mensuelle des conseillers comme dans le passé. Ils doivent plutôt présenter des scores établis en fonction d'une évaluation qualitative de leur performance mensuelle et identifier les points à améliorer. La seconde caractéristique du «coaching» renouvelé concerne le fait qu'il n'est plus comme auparavant réalisé en direct avec le conseiller. Il est toujours effectué par le chef d'équipe mais il se déroule maintenant seulement après que « l'équipe-qualité » ait évalué, en retrait, les dix appels mensuels enregistrés par le système informatique pour chacun des agents. Il y a donc un écart dans le temps entre le moment réel de l'appel et la rétroaction du chef d'équipe auprès du conseiller. La troisième caractéristique se rapporte au ratio entre le temps accordé par les chefs d'équipe à cette forme de support et leur temps total de travail, de sorte que les chefs d'équipe devraient en principe consacrer 80% de leur temps total de travail au «coaching».

Pour les conseillers, l'application de ce «coaching» renouvelé génère certaines irritations, et ce, pour deux raisons. La première est associée au temps consacré au «coaching». Du point de vue des conseillers, l'objectif du 80% est loin d'être atteint sur le plancher du centre d'appel puisque la direction, tout en demandant aux chefs d'équipe de consacrer 80% de leur temps de travail à effectuer du «coaching», ne les a pas nécessairement libérés de l'ensemble des tâches administratives dont ils sont responsables. Conscients des conditions plutôt accaparantes dans lesquelles évoluent les chefs d'équipe, les conseillers pointent clairement la direction de ne pas avoir allégé leur charge administrative et considèrent celle-ci comme incapable de remplir ses promesses. La deuxième raison est liée à l'essence même de la notion de «coaching» tirée de la

description idéalisée qu'en font à la fois les agents de service et les chefs d'équipe. Pour ces acteurs, le «coaching» doit s'articuler autour de l'idée de la rencontre informelle et de la gratuité:

« Du «coaching» pour moi, c'est vraiment que j'irais m'asseoir avec un conseiller, je pourrais l'écouter pendant une heure de temps sans dire un mot puis après ça évaluer comment ça va. »

(Entrevue avec un chef d'équipe, phase 1, C10)

« [P]arce que c'est important que tu aies quelqu'un en arrière de toi, une petite tape sur l'épaule ou qu'il prend du temps pour s'asseoir avec toi. Bien à ce moment là, ça donne une valorisation à la personne.»

(Entrevue avec un agent de service, phase 1, E63)

Or, dans la réalité quotidienne du centre d'appel, les conseillers ne reçoivent qu'une forme de support qui s'apparente très peu à ce type de «coaching» : « Il n'y a pas de «coaching» gratuit. Tout le «coaching» est compté. » (Entrevue avec un agent de service, phase 1, E26)

Ainsi, lorsqu'ils sont en séance de «coaching», les agents ont l'impression de se faire « taper sur les doigts » puisque l'évaluation quantifiée de la qualité de leurs appels, qui a des impacts directs sur l'octroi de leurs bonus trimestriels, est déjà arrêtée quand ils y prennent part. Ainsi, le «coaching» s'apparente dans la perception des conseillers comme le moment de la réprimande mensuelle, ce qui dénature l'essence fondamentale de ce type de rapport articulé autour de la gratuité et de la réciprocité.

La réorientation des attitudes et des comportements et l'introduction d'une nouvelle façon d'évaluer la performance. Dans le cadre de l'innovation organisationnelle et de son appel à la responsabilisation des conseillers, les gestionnaires visaient une réorientation des attitudes et comportements des conseillers en ligne axée sur la modification du processus de la prise d'appel. Pour y parvenir, l'objectif du « premier appel, dernier appel » et celui « d'aller directement au point » étaient mis de l'avant. À l'égard de cette réorientation, les conseillers entretenaient certains doutes puisque ces objectifs représentaient de nouvelles contraintes pesant sur eux :

« Des fois je fais des appels, puis j'aimerais ça aller « beyond » des attentes du client. Mais le client c'est vraiment « business oriented » maintenant, il pose une question, tu réponds, « that's it ». Mais moi j'ai l'ancienne mentalité comme si je vois sa facture puis que ses minutes sont élevées, qu'il a pas le bon plan, je propose un autre plan adapté à ses besoins, bien là je peux plus le faire. »

(Entrevue avec un agent de service, phase 2, E24)

Les conseillers sentent donc que cette réorientation resserrent les balises de leur prestation de service. Ils ne peuvent plus utiliser leurs propres méthodes pour bien servir le client et ils doivent plutôt adopter des attitudes et des comportements élaborés par la direction. Ainsi, la pénétration de la surveillance électronique dans leur espace subjectif les place bien souvent sur la défensive :

« Tu as peur. Tu es craintif. Tu n'es pas naturel dans ton appel. Est-ce que j'ai dit le mot rouge ? Est que je l'ai placé à la bonne place ? Est-ce que j'ai mis ma virgule ? (...) Maintenant, non seulement que c'est juste d'écouter tes appels mais on regarde qu'est-ce que tu fais dans l'écran (...). »

(Entrevue avec un agent de service, phase 1, E42)

Dans ces circonstances, la méfiance envers l'employeur semble s'installer et le discours gestionnaire paraît de moins en moins crédible dans l'esprit des conseillers, d'autant plus que lors de la formation précédant l'implantation de l'innovation organisationnelle, les responsables ont souligné en grande pompe que dorénavant l'évaluation de la performance des conseillers serait foncièrement axée sur la qualité des appels. L'évaluation délaisserait alors la dimension quantitative (les statistiques) comme indicateur de performance pour se consacrer exclusivement à la dimension qualitative de la prise d'appels. À cet effet, les formateurs ont alors invité les conseillers à déchirer des feuilles de papier désignant symboliquement les fameuses statistiques d'antan. Or, une fois de retour au centre d'appel, les conseillers ont constaté que les statistiques étaient toujours dans leur univers de travail.

Selon les propos recueillis en entrevues, il semble encore une fois qu'il y ait eu un décalage de perception entre ce que la direction voulait transmettre comme message en faisant déchirer ces statistiques et la façon selon laquelle les agents l'ont reçu :

« Je peux donner une anecdote qui est devenue nationale. Lorsqu'on a fait la présentation de [l'innovation organisationnelle], dans la journée où on parle de la qualité, à un moment donné on dit aux gens, bon en anglais, « we do not coach to stats, we coach to behaviours ». C'est clair, dit comme ça pour moi c'est très clair que le sens de ça, ça ne veut pas dire que les statistiques ne sont plus importantes. »

(Entrevue avec un directeur, phase 1, D06)

« Les statistiques, on les a toutes déchirées et puis deux semaines plus tard, bien elles sont revenues. Qu'est-ce qui est arrivé ? Pourquoi qu'on a fait ça ? Moi c'est des choses comme ça que je dis : « Bien, arrête de me faire miroiter des belles choses et puis des belles intentions qui arriveront jamais », parce que tout qu'est-ce qu'ils ont parlé, rien n'est arrivé. »

(Entrevue avec un agent de service, phase 1, E34)

De toute évidence, le message des gestionnaires lors de la formation comportait des ambiguïtés, à tout le moins dans l'optique des conseillers. Dans la mesure où les formateurs ont accompagné la présentation de la nouvelle façon d'évaluer la performance à partir d'un exercice à forte teneur symbolique et que la perception de la réalité au centre d'appel pour les conseillers ne ressemblait en rien à ce qu'ils avaient posé comme geste envers les statistiques, ces derniers se sont sentis trahis. Ils ont eu l'impression d'avoir été placé devant un mirage monté de toutes pièces par la direction.

Les possibilités d'avancement. Le dernier aspect du travail des conseillers concerne leurs possibilités d'avancement. Dans le cadre de l'innovation organisationnelle, elles sont intégrées à un modèle d'acquisition des compétences leur permettant de gravir les échelons de qualifications selon les résultats obtenus lors des évaluations mensuelles de leur performance. Dans l'ensemble, l'application de ce modèle est plutôt bien perçue par les conseillers. Néanmoins, lorsque interrogés sur leur expérience au sujet des possibilités d'avancement, ils exprimaient de vives déceptions.

En fait, le principal problème soulevé par les conseillers concernait à la fois l'horizon temporel plutôt court du modèle d'acquisition des compétences ainsi que son application restreinte à la prise d'appels. En fait, pour un conseiller moyen, le temps requis pour franchir tous les échelons de qualifications est d'environ 18 mois et ils ont l'impression de plafonner relativement rapidement :

« [Q]uand tu commences à la base, bien c'est un trois, quatre mois à faire juste des activations (...). Là après un certain temps, [t]u commences à faire du service à la clientèle, ça fait que c'est quand même un nouveau « challenge », sauf que quand tu arrives au « top », bien là ils ne te donnent pas de nouvelles tâches. Ça fait que tu stagnes et puis tu restes là. Ça bloque. »

(Entrevue avec un agent de service, phase 1, E25)

Ainsi, au bout de 12 à 18 mois, les conseillers sentent qu'ils ne peuvent plus avancer. Pour plusieurs d'entre eux, ce laps de temps leur a permis de franchir les trois niveaux de qualification et ils se voient alors confinés à la prise d'appel pour le reste de leur carrière puisque à Montréal les chances d'avancement dans des emplois d'autres domaines dans l'entreprise s'avèrent plutôt restreintes. Cela les déçoit au plus haut point d'autant plus qu'au moment de leur embauche, on semble leur faire des promesses plus ou moins explicites :

« Je crois que quand on les embauche, on leur vend la grosse salade que [l'entreprise] est une grosse compagnie nationale, on peut avancer, aller partout (...). On présente (...), les postes de radio, les magazines, Toronto, Vancouver (...). On vend l'idée de faire un an sur les appels et après, les possibilités sont immenses. C'est vrai que tu peux faire ce que tu veux, mais il faut que tu déménages à Toronto ! La première année, c'est « l'fun, let's

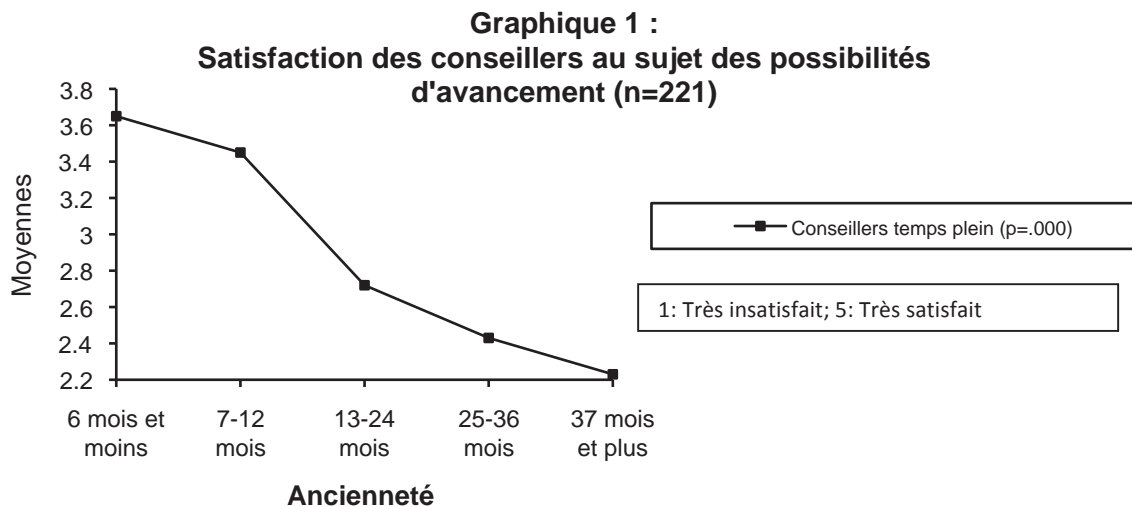
go ». Mais après un an, « pognés » après le téléphone, ils se disent « je m'en vais où avec ça ? »

(Entrevue avec un chef d'équipe, phase 2, C06)

« (...) [C']est sûr lorsqu'on t'accueille, ça a l'air vraiment sérieux là (...). Pis là, soit le directeur ou la directrice va aller puis va te dire « ouins notre compagnie c'est ça, blablabla, vous voulez monter, les ouvertures sont grandes ouvertes (...). [Ça] fait que tout le monde, ils sont gonflés à bloc (...). Mais à [un] moment donné, plus le temps avance, plus tu regardes vraiment (...) comment la compagnie fonctionne (...) c'est comme « maudit, il me semblait qu'ils m'avaient dit simplement une marche, mais là c'est rendu il faut que tu prennes quasiment un ascenseur (...) pour te rendre en haut. »

(Entrevue avec un agent de service, phase 2, E59)

Le graphique 1 présente le degré de satisfaction des conseillers à temps plein à l'égard de leurs possibilités d'avancement. Les résultats démontrent une différence significative des moyennes sur le plan statistique entre les tranches d'ancienneté chez les temps plein, la chute substantielle de satisfaction semblant se produire après une seule année de service.



Il semble donc plausible d'affirmer que les conseillers à temps plein ressentent une déception accrue face aux possibilités d'avancement au fur et à mesure qu'augmente leur ancienneté. Cette déception semble affecter leur engagement organisationnel. Certains partent, d'autres restent tout en envisageant de quitter. Mais en attendant, ceux qui restent ne sont plus autant enclins à se

défoncer pour l'organisation puisque leur expérience de la réciprocité leur a appris que même s'ils se dévouent envers elle, le retour de l'ascenseur ne sera pas nécessairement à l'ordre du jour de la direction.

Une relation d'emploi sous l'empreinte du désenchantement : une mise à l'épreuve de la dignité et de la confiance

Pour les conseillers, la matérialisation d'un certain niveau d'effort de leur part doit s'inscrire dans une perspective d'échange bilatéral où leur sera consenti un certain degré de reconnaissance. Toutefois, dans le cadre de leur expérience, ils apparaissaient vivement déçus de ce qu'ils expérimentaient compte tenu des engagements de l'employeur à l'égard de certains aspects liés à leur travail. Ils ont alors interprété cette situation comme une pratique caractérisée par la malhonnêteté, notamment parce qu'ils espèrent être traités dignement au sein d'une relation d'emploi :

« J'aime les gens honnêtes, et si tu prends un engagement avec moi, tu respectes ce que tu m'as dit. Je veux l'honnêteté. Si tu me contes une « menterie », j'ai l'impression que tu me traites comme une imbécile. »

(Entrevue avec un agent de service, phase 2, E17)

Les conseillers désirent que la direction joue « franc-jeu » avec eux ou, à tout le moins, qu'elle s'en tienne à des promesses qu'elle est capable de réaliser. Sinon, le risque est grand que l'abandon des promesses soit perçu comme une stratégie de camouflage de l'organisation ou une incapacité pour celle-ci à donner un sens précis à ses objectifs d'affaires. Compte tenu que la crédibilité de la direction semble s'être volatilisée du point de vue des conseillers, la principale conséquence observée sur le plancher du centre d'appel se rapportait alors à l'effritement de leur confiance envers la direction :

« Je trouve que c'est de l'espionnage. (...) [Q]ue tu te dises que tes appels peuvent toujours être entendus et puis en plus ils vont prendre ça pour te faire des notes dessus et puis que tu ne peux même pas rien dire. (...) Ça, je trouve que c'est un petit peu de l'espionnage. Je vois ça comme un manque de confiance même peut-être. »

(Entrevue avec un agent de service, phase 1, E45)

« Si vous avez pas d'argent pour payer nos bonus, ok, dites-le moi, je vais être d'accord. Mais faites pas plus de contrôle pour nous empêcher d'avoir nos bonus. Soyez francs. »

(Entrevue avec un agent de service, phase 1, E32)

Que les conseillers en soient venus, dans leur imaginaire collectif, à assimiler les gestes de la direction à des motifs d'action de type plutôt machiavélique est une illustration frappante que la relation d'emploi dans laquelle ils évoluent est devenue insensée. Les conséquences de cette perception relative à leur expérience de la réciprocité jouant en leur défaveur amènent non seulement les conseillers à perdre tout sentiment de confiance envers la direction mais aussi à accentuer en quelque sorte le caractère épisodique de base du rapport d'emploi dans lequel ils sont insérés.

En fait, les conseillers sont fortement motivés au début de leur lien d'emploi. Ils savent que le travail à effectuer ne sera pas de tout repos. Mais le fait de constater que l'organisation semble engagée envers eux les amène à manifester une volonté à se « défoncer » pour l'organisation. Toutefois, à mesure que progresse leur expérience de travail, les conseillers deviennent désillusionnés. Ils perçoivent un manque de respect de la part de la direction générant une baisse de la confiance envers celle-ci, de sorte que diminue leur volonté à s'engager envers l'organisation :

« (...) [A]près avoir fait le cycle d'une année, bien la lune de miel est terminée. [I]ls nous promettent que si tu veux avancer, tu vas être capable d'avancer, ainsi de suite. Mais là, tu ne peux pas. [B]ien moi le point que j'ai apporté, c'est que quand j'ai commencé à travailler ici, j'étais vraiment fier de travailler pour [cette entreprise], et là, plus que ça va, plus que ma fierté prend le bord. (...) Au début, je venais travailler, mais je ne venais pas travailler, je venais m'amuser. J'étais content de rentrer. Là plus que ça va (...) [p]lus que j'ai hâte de partir (...). [J]e commence à chercher ailleurs, et puis je ne suis pas le seul dans ce cas-là. »

(Entrevue avec un agent de service, phase 2, E25)

Cette illustration de la lune de miel, qui se termine au bout d'un peu plus d'un an, est suffisamment forte pour démontrer que la flamme de départ s'estompe au fur et à mesure que les conseillers apprennent à découvrir les vices cachés de l'autre. Il en résulte alors chez les conseillers une volonté de plus en plus explicite, soit à quitter tout simplement l'organisation, soit à y demeurer en travaillant surtout pour soi et non plus pour l'autre :

« [I]l peut y avoir des gens déçus par la compagnie et ils vont pas se dévouer à la compagnie mais à leur travail. »

(Entrevue avec un agent de service, phase 2, E37)

« Un « commitment » par rapport à l'entreprise j'en ai pas vraiment. [J]e me défonce pour moi, pas pour la compagnie où je travaille. (...) Je me fous de qui signe mon chèque de paye.

(Entrevue avec un agent de service, phase 2, E31)

Ces propos suggèrent donc que les conseillers qui restent en lien d'emploi malgré les déceptions tendent à développer un engagement envers le travail plutôt qu'un engagement envers l'entreprise. En outre, le lien les unissant à l'organisation apparaîtra alors comme fragile et à la limite instrumental.

Analyse et discussion

La présentation des résultats empiriques a permis de porter un regard attentif sur l'expérience de la réciprocité des agents de service du centre d'appel à l'étude. À partir d'un examen de trois aspects relatifs à leur travail, soit le «coaching», l'introduction d'une nouvelle façon d'évaluer la performance et les possibilités d'avancement, il a été possible d'identifier les fondements du désenchantement des conseillers dans leur relation d'emploi et de circonscrire les points charnières relatifs à l'évolution de la nature du contrat psychologique les liant à l'employeur. À cet égard, les prochains paragraphes mettront en lumière certains aspects analytiques qu'il importe de retenir suite à la présentation des résultats empiriques. Ils visent à mettre en évidence que le déséquilibre perçu par les conseillers dans leur expérience de la réciprocité relève non seulement de certaines promesses explicites de la direction qui n'ont pas été tenues mais aussi du décalage qui peut subsister entre les conceptions différentes qu'ont l'employeur et ses salariés au sujet de certains aspects liés à leur travail, de sorte que sont alors générées des obligations tacites et subjectives dans la perception des conseillers.

D'abord, les résultats empiriques ont permis de constater que certaines promesses explicites à l'égard du «coaching» renouvelé n'ont pas été tenues par la direction. Plus important encore, en raison de la nature de la nouvelle façon d'évaluer la performance, les résultats empiriques suggèrent que le sens même du «coaching» a été dénaturé selon l'avis des conseillers, cette forme de support passant de ses fondements relatifs à la gratuité du geste et à son caractère informel à d'autres beaucoup plus comptabilisées et formels axés sur des résultats quantifiés.

Ensuite, il fut démontré que l'application de la nouvelle façon d'évaluer la performance visait à rationaliser les attitudes et comportements des conseillers en ligne. Toutefois, la modification du processus de la prise d'appel liée à cette démarche a aliéné le sens, si minime soit-il, qu'ils accordent à leur travail dans la mesure où elle semblait avoir élargi la zone de contraintes pesant sur eux. En fait, non seulement les statistiques liées à leur performance étaient soumises à l'évaluation, mais aussi leurs manières de travailler ou de construire la prestation de service étaient scrutées à la loupe. Ainsi, les conseillers sentaient qu'ils ne pouvaient plus prendre d'initiatives dans leur travail, l'élargissement de la zone de contraintes sur la démonstration quotidienne de leurs compétences s'apparentant alors à l'édification d'une « cage de fer subjective » (Kärreman et Alvesson, 2004 : 151).

Par ailleurs, les résultats empiriques ont permis de mettre en évidence que certaines promesses explicites à l'égard des possibilités d'avancement des conseillers semblaient ne pas avoir été tenues par la direction dans la mesure où apparaissait un décalage entre le discours gestionnaire à l'embauche et la réalité du centre d'appel. Pire encore, la définition des possibilités d'avancement dans l'esprit de la direction passait par l'application du modèle d'acquisition des compétences où les conseillers pouvaient gravir graduellement des échelons de qualification en tant qu'agent de service alors que les conseillers voyaient, à leur embauche, les promesses relatives à leurs possibilités d'avancement comme étant liées à une éventuelle sortie de la prise d'appel. Ce

constat a contribué à un désenchantement notoire des conseillers à l'égard de leur expérience de la réciprocité.

Enfin, la présentation des résultats a aussi permis de mettre en lumière un décalage des représentations situationnelles dans la formation donnée aux conseillers avant l'implantation de l'innovation organisationnelle. Lors de cette formation, les responsables avaient insisté sur la prise en compte de l'aspect qualitatif comme déterminant dorénavant les modalités d'évaluation de la performance des conseillers. Ceux-ci avaient alors été invités à déchirer symboliquement des feuilles de papier représentant les statistiques. Ce geste a fortement marqué leur imaginaire collectif puisque les statistiques représentent non seulement un indicateur de leur performance mais surtout une contrainte majeure dans l'exécution de leurs tâches. Le fait de déchirer des feuilles de papier représentant symboliquement les statistiques constituait dans leur esprit un exercice à forte teneur émotive et pouvait représenter un geste de libération de leur joug quotidien. Toutefois, lors du retour au centre d'appel, les conseillers ont pris conscience que les statistiques demeureraient toujours dans le paysage. Pour la direction, le message à l'effet que les statistiques ne disparaîtraient pas était clair. Toutefois, dans l'esprit des conseillers, ce geste comportait certaines ambiguïtés, d'autant plus qu'il était venu les chercher émotivement. Ce genre de fossé entre les attentes créées par ces promesses et la réalité dans le centre d'appel semblait alors avoir cristallisé chez les conseillers la perception d'être non seulement traités inéquitablement mais surtout l'impression d'être manipulés.

Somme toutes, ces perceptions des conseillers au sujet du déséquilibre de la réciprocité les défavorisant les amenèrent à entretenir un niveau de confiance à la baisse envers la direction. Compte tenu que la notion de confiance représente une sorte de « lubrifiant des relations sociales » (Thuderoz, 1999 : 10), il est dès lors compréhensible que les attitudes et comportements de la direction envers les conseillers, à tout le moins dans leur représentation symbolique, aient mitigé substantiellement leur volonté à s'engager pour une organisation agissant de cette façon. Dans ces conditions, puisque dans la représentation symbolique des conseillers la notion d'engagement repose sur des principes de réciprocité³, ceux-ci se demandaient pourquoi ils devraient maintenir une volonté à se « défoncer » pour une organisation non seulement qui ne les supporte pas comme ils s'en attendent mais surtout qui leur fait miroiter explicitement et aussi symboliquement des promesses qui s'actualisent bien peu dans l'action. C'est dans ces circonstances que leur engagement organisationnel semble être passé d'un engagement affectif à un autre plus instrumental ou de continuité (Meyer et Allen, 1997) puisque un déséquilibre désavantageux pour eux semblait émerger de leur relation d'emploi. En outre, toujours dans leur optique, la nature de leur contrat psychologique semble alors avoir évolué d'un caractère relationnel vers un autre plus transactionnel, démontrant que cette notion s'inscrit bien souvent dans une perspective évolutive (Dabos et Rousseau, 2004).

³ Les conseillers accordent une grande importance à leur expérience de la réciprocité. Cette perspective met en relief l'aspect bilatéral de la relation d'emploi qu'ils s'attendent d'expérimenter et elle rejoint l'idée que l'engagement organisationnel représente une forme de construit social s'articulant autour d'un « échange de rationalités entre les acteurs » (Bélanger et Thuderoz, 1998 : 490) et d'une réciprocité qui doivent quotidiennement s'actualiser.

Conclusion

L'intention de départ de cette communication était de comprendre les fondements de l'expérience de travail des employés d'un centre d'appel afin d'identifier leurs perceptions au sujet de l'évolution de leur expérience de la réciprocité et de leur contrat psychologique, et ce, dans un contexte d'innovation organisationnelle. L'objectif sous-jacent de cette intention était de pallier à certaines lacunes relatives aux études portant sur la notion de contrat psychologique et qui s'articulent bien souvent autour d'une compréhension quantitative des déterminants menant à une évolution de ce genre d'entente. Bien que ce type d'analyse s'avère fort utile pour saisir les enjeux liés à ce phénomène, il importe aussi d'utiliser des instruments plus qualitatifs pour bonifier la compréhension de l'évolution du contrat psychologique et ainsi identifier le processus subjectif par lequel elle se construit.

À partir d'un examen de certains aspects relatifs au travail des conseillers, soit le «coaching», l'introduction d'une nouvelle façon d'évaluer la performance et les possibilités d'avancement, la présentation des résultats empiriques a permis d'identifier les fondements du désenchantement des agents de service dans leur relation d'emploi et de circonscrire les points charnières relatifs à l'évolution de leur contrat psychologique et ses impacts sur leur engagement organisationnel. Ce genre d'analyse a permis un élargissement de la compréhension du phénomène relatif à l'évolution du contrat psychologique dans la mesure où il fut démontré que son érosion ne repose pas seulement sur le fait que des promesses explicites de l'employeur n'ont pas été tenues, comme le soulignent plusieurs études s'intéressant à la notion de contrat psychologique (Lemire, 2005; Dabos et Rousseau, 2004; Robinson et Morrisson, 2000). En fait, l'érosion du contrat psychologique peut aussi reposer sur le décalage qui subsiste entre les conceptions différentes que peuvent avoir l'employeur et ses salariés au sujet de certains aspects liés à leur travail, de sorte que sont alors générées des obligations tacites et subjectives dans la perception des salariés. En ce sens, il a été démontré dans ce travail que les façons distinctes de concevoir le «coaching», la nouvelle façon d'évaluer la performance, les possibilités d'avancement et le geste relatif aux « statistiques déchirées » en cours de formation ont elles aussi contribué à accentuer l'érosion du contrat psychologique. En entrant littéralement dans le monde des conseillers et en cherchant à comprendre les fondements de leur interprétation situationnelle, cette démarche a permis une compréhension substantielle du processus par lequel peut évoluer un contrat psychologique vers son érosion et d'en évaluer ses impacts sur la transformation d'un engagement organisationnel affectif en un autre plutôt instrumental.

À notre avis, bien que cette analyse se concentre exclusivement sur un seul milieu de travail, soit un centre d'appel, il demeure plausible de croire qu'elle peut aider tout praticien en GRH à mettre en place dans le futur les conditions d'un contrat psychologique équilibré puisqu'elle met en évidence l'importance de comprendre la conception des employés au sujet de certains aspects relatifs à leur travail avant de procéder à des changements organisationnels ayant des impacts sur les ressources humaines. Ainsi sera-t-il possible dans le futur d'intégrer de manière plus dynamique les ressources humaines dans la performance globale de l'organisation et de relever

plus adéquatement le défi contemporain relatif à la responsabilité sociale de l'entreprise à l'égard de ses employés.

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ASB 2010
Halifax, Nova Scotia

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EFFECTS OF RATER PRIMING AND INCENTIVES ON RATING ACCURACY

We investigated the effects of two manipulations - incentives and rater priming - on performance appraisal accuracy. In contrast with previous studies, our results did not support the hypotheses that priming and incentives would improve Cronbach's (1955) differential accuracy, a type of accuracy that is most relevant to employee feedback.

Performance Appraisal and Employee Feedback

One of the goals of conducting performance appraisals is to improve employees' individual performance, and collectively improve firm performance (Denisi & Gonzalez, 2000). Performance appraisals (PA) provide an opportunity for managers to give developmental feedback to employees by diagnosing areas of strength and weakness, which can be used to develop a plan for improved performance. The goal of the present study was to investigate methods for improving the accuracy of ratings made on a Behavior Observation Scale (BOS; Latham & Wexley, 1977) – a rating format that lends itself well to employee development. A BOS rating scale includes multiple critical incidents of specific behavior, which are rated on a frequency scale. Because the BOS provides information about the frequency of specific behaviors, it can be used effectively to provide employees with diagnostic feedback about their work performance.

In the current study, we were interested in considering how two different formats of a BOS rating instrument may affect raters' processing of performance information, in order to maximize the accuracy of the BOS rating scale. In the present experiment, no actual feedback was provided to ratees; however, our goal was to enhance the accuracy of BOS ratings, which show promise for employee development, because they are viewed as fair by employees (Roch & Sternburgh, 2007), and because the specificity of the frequency ratings provided on a BOS clarifies performance expectations (Tziner & Latham, 1989). More accurate ratings on a BOS should provide a more fine-tuned diagnosis of employee strengths and weaknesses.

Literature Review and Hypotheses

Evaluation of Performance Appraisal Accuracy

Assessing the accuracy of performance appraisals involves comparing observed ratings with corresponding "true" score estimates (Cardy & Dobbins, 1994; Cronbach, 1955; Murphy & Cleveland, 1995; Sulsky & Balzer, 1988). True score estimates are often based on the aggregation of ratings provided by a group of experts, who are provided with enhanced opportunity to make ratings. Accuracy then refers to a comparison of the scores provided by a rater to the corresponding "true" or averaged expert scores for a given set of ratees. In the present study we assessed accuracy using Cronbach's four components of accuracy, which represent four independent components of rating accuracy. Cronbach's components reflect raters' deviations from a true score matrix of ratees X items. Lower deviations indicate better accuracy. Elevation accuracy (EL) represents raters' level-of-rating accuracy, averaged across ratees and items. It reflects an overall tendency to judge ratees too high or too low. Differential elevation (DE) measures the differential main effect of ratees, averaged across items and controlling for EL. DE indicates a rater's accuracy in differentiating among ratees and is relevant to administrative purposes of PA (i.e., determining who the best or worst employees are overall). Stereotype accuracy (SA) concerns the rater's accuracy in differentiating among items, averaged across ratees and controlling for EL. SA is relevant to training needs assessment for a group of ratees. Differential accuracy (DA) represents the differential ratee by item interaction, controlling for EL, DE, and SA. DA indicates rater accuracy in identifying patterns of ratee performance across items and is relevant for individual-level identification of ratee strengths and weaknesses. DA is the focal criterion, given our interest in feedback-relevant accuracy, but all four components were examined to determine the full range of effects of our interventions on accuracy.

Improving the Accuracy of PA Feedback

Wagner and Goffin (1997) found that global PA items, which assess broad dimensions of performance, were rated more accurately with respect to DA than were the more specific behaviours thought to be useful for the provision of feedback. This situation presents a dilemma, because broad items are less appropriate for employee development. Ratings made at the level of broad dimensions of performance do not provide specific diagnostic information, which can

clarify expectations, and indicate to employees how they can improve performance (Jelley & Goffin, 2001).

Cognitive Priming. In order to investigate this dilemma – that broad items lead to more accurate ratings of DA, but are less diagnostic in terms of feedback— Jelley and Goffin (2001) considered how information about performance appraisal is stored in memory. As outlined by Lord and Maher (1991), information in long-term memory is thought to be organized in bundles of interconnected elements, which helps retention and retrieval. Feldman (1986) suggested that representations of broad categories are more accessible in memory than are the specific memories within that category. Thus, information about broad performance dimensions is likely accessed more easily in memory as compared to detailed memories about specific behaviors. Because memories are stored as networks of related information, priming raters - by having them think about broad categories (i.e., a global measure of performance) - may help to activate memories about specific behaviors. Priming activates the concept which is primed (e.g. a broad dimension of performance) as well as other related concepts, such as specific behaviors (Ashcraft, 1989). Based on this theory of cognitive priming, Jelley and Goffin proposed that priming raters with a global item (i.e., a dimension of performance), before they rate specific items (i.e., a behavior), might improve the accuracy of those specific items through the activation of related memory because it is assumed that broad or global judgments about a ratee's performance will be related to specific memories of ratee behaviour. Through spreading activation, these more specific memories would become more highly activated and more likely to be rated correctly, resulting in more accurate BOS ratings. Accordingly, Jelley and Goffin investigated a modification to the traditional BOS format; specifically, they assessed a BOS format that included a global item (rating a dimension of performance) as a prime, followed by ratings of specific BOS items (behaviors), to determine if this priming would improve the accuracy of DA as compared to a traditional BOS without priming. Raters first made a rating on a global-comparative item, which asked raters to compare the given ratee to all other ratees on a given dimension (e.g., "enthusiasm") before providing a frequency rating on several specific behaviors (e.g., "smiles or laughs while teaching"). Indeed, Jelley and Goffin found that priming raters with this global-comparative item did improve accuracy with respect to DA, but with a cost – accuracy with respect to DE was worse with priming.

Jelley and Goffin (2001) suggested that the priming manipulation using the global dimensional item might have improved DA by offering participants an opportunity to express their global judgments apart from the specific frequency ratings they made. Specifically, when raters make ratings on specific behavioural items, they may be taking into account both the ratee's standing on the underlying global factor (that the item represents), as well as the ratee's standing on the specific behavior described by the item. Jelley and Goffin argued that a traditional BOS, with its very specific items, does not provide raters with an opportunity to communicate their overall impression of the ratees' performance. Without that opportunity, the raters' overall impression may influence the ratings made on the specific BOS items. In other words, raters may actually be communicating their judgments of the ratees' standing on broad dimensions of performance when they assign specific scores to the BOS items. Jelley and Goffin proposed that providing raters with an opportunity to make a global rating first improved the accuracy of DA because raters had the opportunity to express their global judgments, apart from the specific behavioural ratings they made. As such, primed raters might not have felt that they

needed to express their global judgments about the overall standing of the ratees through their ratings of each specific item. Rather, primed raters (whose global-comparative judgments had been expressed) were able focus on the unique aspects of each frequency item on the BOS. In contrast, the non-primed raters may have been less accurate with regard to DA because they did not have the opportunity to clearly express their global judgments regarding the performance of ratees. Consequently, their ratings of specific behaviours were dominated by more global impressions of the ratees, and they failed to adequately consider the specifics of each behavioural item.

Rater Motivation

If it is indeed that case that broad representations are more accessible in memory as compared to specific behaviours, then raters will need to be highly motivated in order to search their memories to provide accurate ratings of specific behaviors. In a PA study looking at rater motivation, Salvemini and colleagues (1993) investigated the effects of financial incentives on accuracy. They had students observe and rate videotaped actors portraying sales representatives. Performance levels and true scores were operationalized in fairly objective terms. Participants who were informed – either before observation or before rating – that they could earn payments by being accurate, were in fact more accurate (with respect to EL & DE) than were controls. However, only participants informed of the incentives prior to observation significantly improved their DA. Thus, increased motivation during the observation process seemed to increase the retention of detailed performance information.

The Salvemini et al. (1993) study may have limited generalizability, due to some of the aspects of the performance ratings that were used. Specifically, performance in their study was fairly easily quantified (e.g., dollar volume of sales). One of the purposes of the present study was to determine if accuracy would be improved as a result of incentives when using more realistic performance items. The Salvemini et al. (1993) study also used a performance appraisal tool with relatively few items (one item for each of three dimensions) and their scale may not be ideal for providing feedback, because the ratings are based on a percentage of productivity relative to an average employee (e.g., a score of 50 is one half of the output of the average employee). In the current study we used BOS ratings, which are directly generalizable to actual PA settings, include a substantial number of items, and are often recommended for their suitability for providing employee feedback (Latham & Wexley, 1977). In addition, Salvemini et al. had their participants complete ratings a short time after performance was observed, whereas other authors (e.g., Jelley & Goffin, 2001; Murphy, Martin, & Garcia, 1982) have recommended a temporal separation of observation and rating sessions to simulate the memory demands faced by raters in true PA settings. Accordingly, we implemented a 48-hour time delay between the observation and rating sessions.

In this study, we replicated and integrated some aspects of Jelley and Goffin's (2001) study of rater priming, and Salvemini et al.'s study of rater incentives. Based on the results of Jelley and Goffin (2001), we hypothesized that providing raters with a global-comparative prime (making a rating on a dimension), prior to making specific ratings, would increase accuracy on

DA, as compared to non-primed participants. As well, we hypothesized that the priming would decrease accuracy on DE. With respect to motivation, based on the results of Salvemini et al. (1993) we expected that an incentive described at the time of observation would result in significantly better DA than the recall incentive and no-incentive conditions. Because we expected that both priming and an incentive would improve accuracy, we expected an interaction, such that accuracy would be optimized when both priming and an incentive are provided. However, because priming on its own has been found to be effective, it may be the case that the effectiveness of the incentive is decreased in the priming condition.

Method

Participants

This study used a portion of the data from Jelley, Goffin, Powell, & Heneman (2007) as well as additional data, not examined therein, to address different research questions. Useable data for this study were provided by 164 students (96 women; 68 men) who served as performance raters. Their age ranged from 17 to 34 years ($M = 19.5$) and most ($N=148$) were first year university students. Participants were registered in introductory psychology courses, and received course credit in return for their participation.

Ratees

As in Jelley and Goffin (2001), the four ratees in this study were university lecturers recorded by Renaud (1996). Each video was approximately 10 minutes in length, and was an excerpt from the instructors' actual lectures, not a scripted performance. Because the participants, who served as raters, were university students the target job was well-known to them. Each lecturer (ratee) was identified by a letter to protect confidentiality, and the lecturers were not known to the participants (ratees.)

Items for the Behavioral Observation Scales

The BOS rating form consisted of 20 specific behaviors, which were validated items from the Teachers Behavior Inventory (TBI; Murray, 1987; 1991). A sample item is: "Speaks at an appropriate pace." The 20 items assessed three broad performance dimensions relevant to teaching -- Clarity, Enthusiasm, and Speech. Raters were asked to complete all 20 items for each instructor before moving onto the next instructor. All items were rated on a frequency rating scale (1 [Almost Never] to 5 [Almost Always]). The infrequency item, "Climbs on desks or other furniture," was also included for each of the four instructors (see Jackson, 1970). Elevated ratings on the infrequency items suggested that respondents were responding in a non-purposeful manner, because the respective behavior did not actually occur in any of the lectures. Four

participants' data were omitted based on a rating of four or five to one or more infrequency items.

True Scores

The true score estimates used in this study were developed following Jelley and Goffin's (2001) procedures, based on the approach pioneered by Borman (1977). True score estimates were defined as the mean ratings of a group of independent expert raters, who were provided with opportunities to observe and rate performance in ideal conditions (i.e., two or more viewings of each lecture, note-taking allowed; no delay between observation & rating). The group of expert raters included twenty industrial/organizational psychology graduate students and two industrial/organizational faculty members. The mean of the 22 experts' ratings of each behavior for each ratee served as the true score estimates. The intraclass correlation for the group of 22 experts was .97 (two-way random effects, average measure, absolute agreement model; McGraw & Wong, 1996). One expert rating was omitted because it was an extreme outlier, suggesting that the rater had misread the item.

Priming Manipulation

The priming manipulation consisted of having participants make initial global ratings of performance, on each dimension of performance, using the Relative Percentile Method (RPM; Goffin, Gellatly et al., 1996). The RPM makes use of a percentile scale. Raters are instructed that an average performer would receive a score of 50, meaning that approximately 50% of the population of instructors would be less effective on the given performance dimension. Additional benchmarks are described for high and low levels of performance. After making these ratings for a given performance dimension (i.e., Clarity, Enthusiasm, or Speech), participants were then asked to make ratings on several specific job behaviors for each respective dimension using the BOS. Participants were told to use their RPM ratings as benchmarks for making the specific behavior ratings, and they were encouraged to refer to their RPM ratings as often as they wished. Participants in the no-priming condition simply completed the specific behavioural ratings on the BOS, without the RPM priming.

Incentive Manipulation

Participants in the incentive manipulation conditions were instructed that they would receive a prize of \$20.00 if they were among the most accurate raters (top 20% relative to expert's true scores). Participants were either told about this incentive during the first session, prior to observing the videotaped segments (observation incentive); during the second session, prior to making ratings (recall incentive); or were not offered an incentive (no-incentive control).

Design and Measures

Participants were randomly assigned to conditions in a 2 x 3 completely randomized (between-subjects) factorial design. The experimental manipulations were RPM priming (priming or no priming) and incentive condition (observation, recall, or no-incentive control).

Cronbach's (1955) four components of accuracy (DA, DE, EL, & SA; described earlier) served as the dependent variables. DA was of primary interest because it is relevant to rater identification of patterns of ratee strengths and weaknesses across items.

Procedure

All participants served as performance raters and took part first in an observation session, and then in a rating session 48 hours following the first session. In the observation session, participants viewed the four videotaped lectures. The videos were shown in the same order across all experimental conditions, and were shown only once. Raters in all conditions were aware that the reason they were watching the videos was because they would be asked to evaluate the ratees' performance during a second session. Raters were not permitted to take notes. Participants provided either BOS ratings only, or RPM global ratings (for each dimension) and BOS ratings. Raters in observation incentive and recall incentive conditions were informed during the first or second session, respectively, that an incentive would be provided for accurately rating the performance of the ratees. Separate sessions were conducted for the different experimental conditions.

Results

Multivariate Analysis of Variance

A completely randomized 2 (priming versus no priming) X 3 (observation incentive; recall incentive; no incentive) MANOVA was conducted with Cronbach's (1955) accuracy components as dependent variables (DA, DE, SA & EL). As described in the introduction, Cronbach's components measure deviations of participant ratings from corresponding true scores; therefore lower scores indicate greater accuracy. We conducted a power analysis, and estimated that our MANOVA was capable of detecting effect sizes of $f^2=.05$ (i.e., small-to-moderate; Cohen, 1988) or larger with power of .80 (G*Power3; Faul, Erdfelder, Lang, & Buchner, 2007). Cell means are presented in Table 1.

There was no main effect for priming, Pillais' trace = .01, $F(4, 155) = .36$, $p > .05$, partial eta squared = .01. As well, there was no main effect for incentive, Pillais' trace = .06, $F(8, 312) = 1.24$, $p > .05$, partial eta squared = .03. Finally, the multivariate interaction was not significant, Pillais' trace = .058, $F(8, 312) = 1.16$, $p > .05$, partial eta squared = .03. Because none of the MANOVA values are significant, this suggests that the univariate effects cannot be evaluated without risking an inflation of Type I error rate (Stevens, 1996). However, because we had specific hypothesis with respect to the priming manipulation on DA and DE, based on the Jelley and Goffin (2001) findings, we did look at the univariate tests for DA and DE. None of the univariate effects were significant. The partial eta squared values for DA were .00 for priming, .037 for incentive, and .011 for the interaction, suggesting the experimental manipulations were accounting for little to no variance in the accuracy scores. The partial eta squared values for DE were .00 for priming, .003 for the incentive, and .014 for the interaction, also suggesting that the manipulations accounted for little to no variance in the accuracy scores.

Table 1
Cell Means and Standard Deviations

Accuracy Component	RPM Priming					
	Priming			No Priming		
	M	SD	n	M	SD	n
Observation Incentive						
DA	.73	.11	26	.76	.10	28
DE	.41	.17	26	.42	.16	28
EL	.20	.17	26	.20	.17	28
SA	.55	.10	26	.60	.11	28
Recall Incentive						
DA	.79	.12	29	.77	.10	26
DE	.42	.18	29	.46	.17	26
EL	.22	.16	29	.17	.10	26
SA	.58	.14	29	.62	.13	26
No Incentive Control						
DA	.74	.11	28	.72	.11	27
DE	.45	.14	28	.40	.17	27
EL	.25	.22	28	.22	.19	27
SA	.60	.11	28	.55	.12	27

Accuracy scores are based on a 5-point frequency rating scale; lower scores indicate greater accuracy.

DA = differential accuracy; DE = differential elevation; EL = elevation; SA = stereotype accuracy.

Discussion

The primary goal of this experiment was to replicate and extend the results of Jelley and Goffin (2001). Those authors found that priming raters, by requiring them to make an initial global-comparative rating before making more specific ratings, improved rater accuracy in terms of DA (accounting for 5% of the variance). The authors also found that RPM priming resulted in less accurate ratings with respect to DE (accounting for 4% of the variance). These results were not replicated in the current study; the priming manipulation did not significantly influence the accuracy of either DA or DE. As described earlier, Jelley and Goffin proposed that the RPM priming manipulation might have improved DA by offering participants an opportunity to express their more global judgments apart from the specific behavioral ratings they made. In the current study, the RPM rating was evaluative in nature as compared to the BOS items. Specifically, the RPM item asked raters to place the ratee along a continuum from 0-100, thus introducing an obvious evaluative component. In contrast, the BOS items were frequency-based, (e.g., “walks up aisle beside students”), and may not have an obvious evaluative component – that is, it may not be obvious to a rater whether walking up the aisles frequently is necessarily related to teaching effectiveness. However, this was also the case in the Jelley and Goffin (2001) paper; in that paper, the global RPM item was also evaluative and some the specific BOS items were less evaluative, yet they still found an effect of RPM priming of rating accuracy.

Surprisingly, providing an incentive (in the form of a \$20 prize) for accuracy also did not appear to improve accuracy, a result that contrasts with previous research. For example, Jelley et al. (2007) compared two versions of the BOS (serial and parallel), and found that, overall, the serial format (where all 20 BOS items are completed for each instructor before moving onto the next instructor) was more accurate than the parallel version (where each item is completed for all four instructors, before moving onto the next item). In that study, they also showed that raters could use the parallel BOS with accuracy similar to that of the serial approach provided an incentive was communicated to raters at the outset (an Observation Incentive). Indeed, the parallel approach was slightly, albeit not significantly, better than the serial approach under the Observation Incentive condition. Those authors concluded that the parallel approach to BOS rating requires more cognitive effort to use effectively than does the serial approach. Overall they concluded that the traditional serial BOS (without incentive) appears to be as good as or better in terms of accuracy than any of the alternatives they examined. Only when the task is made more cognitively challenging (i.e., by forcing raters to use a parallel format), did the incentive have an effect. In the present study, we only looked at a serial format of the scale. It appears that when raters use a serial BOS, which focuses on specific items, and allows raters to use a rating strategy where the items are blocked by instructor, an extra incentive for accuracy may not be necessary. Salvemini et al. (1993) also looked at incentives for improving the accuracy of ratings. However, their main effects for incentives were calculated across other experimental conditions. This other experimental condition was that raters were provided with either positive or negative prior performance information. Looking at the descriptive statistics for their control condition, where no prior information about performance was provided, we noted that their recall incentive was slightly worse than no-incentive on DA ($d = 0.17$), EL ($d = 0.15$), DE ($d = 0.21$), and “overall accuracy” ($d = 0.25$; all non-significant with $n=12$ per cell). Again,

perhaps it is the case that incentives are only required when raters need to overcome some cognitive difficulty – in the case of Salvemini et al., that was motivating the raters to ignore prior information about the ratees, in the case of Jelley et al., that was using the cognitively challenging parallel BOS format. Perhaps incentives are not necessary when the task does not present these extra challenges.

Using a broad dimensional RPM rating, prior to making specific frequency ratings using the BOS did not appear to have detrimental effects on DE, as was the case in Jelley and Goffin's 2001 study. This may be a promising finding, indicating that the two formats (broad RPM and specific BOS) could in fact be complementary. Although the RPM priming did not enhance the accuracy of the BOS, as was the case in Jelley and Goffin (2001), the priming also did not worsen ratings of DE in the current study, as it did in Jelley and Goffin's study. Because combining the two approaches was not detrimental to the accuracy of the BOS, it could be case that a combination of RPM global ratings of dimensions with BOS frequency ratings of specific behaviours is an optimal format for Performance Appraisal. In previous research, the RPM has shown evidence of superior criterion-related validity as compared to other rating formats (Goffin, Jelley, Powell, & Johnston, 2009). As well, the BOS has been noted for its behavioural specificity, which is beneficial for providing feedback and setting performance expectations for employees (Tziner & Latham, 1989). Because the addition of the RPM is not detrimental to the accuracy of the BOS ratings, our findings suggest that combining these approaches may be a promising way to make administrative decisions as well as providing developmental feedback to employees.

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ASB 2010
Halifax, Nova Scotia

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LEARNING AND PERFORMANCE IN THE SUBPRIME MORTGAGE CRISIS

Learning orientation, the desire to gain new knowledge and skills, and performance orientation, the desire to master existing skills and avoid criticism or failure, are partly determined by organizational climate. By reviewing extant literature, this paper seeks to determine whether the U.S. financial industry encouraged a performance orientation, which subsequently played a role in the recent financial crisis.

The countless benefits of employee development have been demonstrated over the past decades. Employee development, both informal and formal, has been linked to individual self-confidence, job satisfaction, and organizational commitment (Birdi, Allan, and Warr, 1997). Low turnover intent was also found to be linked to development activities (Dysvik and Kuvaas, 2008). McDowall and Fletcher (2004) found that job seekers see the value in employee development to help them build their knowledge and skills and move them along on their preferred career path. Offering development activities, therefore, can be seen as a source of competitive advantage. Additionally, Holton (2001) found that employees experience less post-decision dissonance after taking a new position when they perceive that the organization offers ample development opportunities. It has also been found that employees who take part in development activities feel indebted to the organization that provided them and will have increased loyalty as a result (Maurer and Lippstreu, 2009). Finally, obvious benefits are gained by increasing the knowledge base of each individual employee to increase the organizational knowledge level (Garavan et al., 2002; Nonaka, von Kroeg, and Voelpel, 2006). Despite the clear benefits of employee development, every individual does not have the same propensity to participate in activities that are offered by the organization. This variance can be explained, in part, by whether the employee holds a learning orientation or a performance. Human resource practitioners must ask, however, whether there is anything the organization can do to encourage employees' participation. If the organization does not promote learning, what are the outcomes?

We sought to answer these questions by exploring previous research findings on how organizational climate predicts either learning or performance orientation. Then, using the organizational climate in the United States financial industry during the last decade as a case

study, we sought to determine whether organizations encouraged one type of orientation, and what role, if any, this may have played in the ensuing financial crisis.

Learning Orientation

There have been various names given to the concept of 'learning orientation' by different researchers. Carr and Claxton (2002), for example, used the term 'learnacy' to describe a person's level of curiosity and experimentation, resilience and reflection, and opportunism and conviviality. He described the many ways in which one can assess an individual's learnacy, including observation, questionnaires and learning situations. Other researchers have used 'learning goal orientation' to describe individuals having the goals of obtaining higher skills and knowledge than they currently possess (Gong, Huang, and Farh, 2009; Maurer, Wrenn, Pierce, Tross, and Collins, 2003; Maurer and Lippstreu, 2009). Finally, the most simple term, and the one that will be used throughout the rest of this paper, is 'learning orientation', used by Porter and Tansky (1996), Martinez (1999), and Bunderson and Sutcliff (2003) for example. Although the terms are slightly different, each term looks at an individual's proclivity to acquire new skills and knowledge rather than simply focusing on the skills and knowledge he/she already possesses. Additionally, individuals with high learning orientation are likely to be task-focused and attribute failure to poor strategy instead of their own incompetence (Bunderson and Sutcliff, 2003).

A number of aspects of learning orientation have been studied, with various outcomes identified. Martocchio and Hertensein (2003) used learning scenarios to look at learning orientation and self-efficacy. They defined learning orientation as one's desire to obtain new skills and knowledge and self-efficacy as an individual's belief that his/her own skills and competencies can be increased through training and that he/she can successfully complete training. They set up a software training class for clerical workers and assessed their pre- and post-training self-efficacy, learning orientation, and results. They wished to determine if pre-training self-efficacy would moderate learning orientation throughout the task, and if this would lead to a greater perception of self-efficacy post-training. They found that individuals with higher pre-training self-efficacy exhibited higher learning orientation as well as mid-training self-efficacy. In other words, individuals who had the desire to build their skills and knowledge also were of the belief that they had the capabilities to improve through training.

Rather than investigating general self-efficacy, in a highly generalizable study, Maurer, Wrenn, Pierce, Tross, & Collins (2003) sought to determine if there were different levels of self-efficacy for building upon knowledge, skills, abilities, or other characteristics. That is, if an individual has a learning orientation, do they have the same self-efficacy beliefs for all learning situations? They surveyed 257 undergraduate students as well as 264 employees from a large non-profit organization. Findings from both groups were similar. They found that individuals with a higher learning orientation exhibited, in general, a higher level of self-efficacy for building knowledge, skills, abilities, and other characteristics than individuals with lower levels of learning orientation. Also, knowledge and skills were associated with the highest levels of self-

efficacy; specifically, individuals believed that they had the best chances of improving on computer skills, planning, organizational skills, and position-specific expertise, and believed that they could improve least on their innovation abilities.

Gong, Huang, and Farh (2009) took the study of the relationship between learning orientation and self-efficacy a step further to look at how this was linked to transformational leadership and creativity. They surveyed 277 Taiwanese insurance agents at two points in time. They found that individuals with high learning orientation were likely to also exhibit high degrees of both transformational leadership and creative self-efficacy. Creative self-efficacy correlated with insurance agents being more creative on the job, and furthermore, highly creative individuals were the highest performers of the group according to their supervisors' assessments.

Another characteristic of individuals with higher learning orientation is that they are typically more open to challenges and persist even when failure might be imminent, in order to gain learning experience (Gong and Chang, 2007). These individuals will generally assume more challenging tasks and are open to constructive criticism. Gong and Chang (2007) examined how this persistence in international students with high learning orientation influenced their success while studying outside their home country. Results suggest that students with high learning orientation set higher goals for themselves in terms of academic achievement and social integration. They also tended to be more likely to achieve their goals than their peers with lower learning orientation.

Clearly, there has been substantial research into different aspects of learning orientation. In many of these studies, researchers have used the concept of 'performance orientation' to explain the opposite condition. Although many researchers describe performance orientation as being a completely separate construct, some researchers have found an inverse relationship between them (similar to dimensions like introversion and extroversion) (Martin, Marsh, Debus, Malmberg, 2008). It is therefore not yet clear whether one individual can experience different degrees of each at the same time. For our exploratory analysis and case study, we chose to address each orientation separately, with an assumption of mutual exclusivity.

Performance Orientation

Performance orientation describes an individual's desire for learning new information as well as the behaviours that individuals will exhibit when faced with a learning scenario or challenge. An individual with a high performance orientation will be less focused on learning new competencies and skills, and more focused on displaying their current skills and knowledge (Bunderson and Sutcliff, 2003). They will take on challenges that use their current skills and knowledge, but they will back off in the face of uncertainty or negative criticism (Porter and Tansky, 1996). If they are unable to avoid criticisms, they will react defensively and take the perceived failure personally (Bunderson and Sutcliff, 2003). Other names for this type of characteristic previously used include 'goal orientation', and 'performance goal orientation' (Martin, Marsh, Debus, Malmberg, 2008). There is little consensus among researchers on the definition of the term 'performance orientation'. For example, Calza, Aliane, and Cannavale

(2009) define performance orientation as the inclination to seek high degrees of innovation, risk, and reward. Apart from the high reward desired, this definition is more consistent with learning orientation. For the purposes of our analysis, we used the definition derived from Bunderson and Sutcliffe (2003) and Porter Tansky (1996).

Porter and Tansky (1996) investigated the different causal attributions that are made by individuals who are learning oriented versus performance oriented. They used a sample of 102 undergraduate students who were beginning their search for full-time post-school-year positions. They found that those with higher performance orientation were most likely to cite mismatched, or not adequate personal skills as the reason for not being hired and did not believe that the situation could be changed. Learning oriented individuals, however, felt that the strategies they employed, such as their resume structure or information provided on their resume was to blame for them not being hired, and that the situation might improve if they provided more information to the potential employers, indicating a higher locus of control.

Bell and Kozlowski (2002) explored the relationship between performance orientation, learning orientation, and an individual's self-efficacy, knowledge, and task-performance. Using 125 undergraduate students and a computer simulation experiment, they found that learning orientation was positively related to self-efficacy, knowledge and task performance. In contrast, performance orientation was not correlated to self-efficacy, however it was negatively related to task-performance: in other words, individuals with a high performance orientation performed the worst on the given task. Additionally, individuals judged to have high ability before the task were most negatively affected by the performance orientation in comparison to individuals beginning with low ability, suggesting that individuals who do not possess knowledge and competencies to perform a task will have similar performance regardless of their orientation. In other words, cognitive ability can act as a moderator of the effect of orientation.

In a field study with a cross-organizational sample of 651 participants, Maurer and Lippstreu (2009) found that having a high performance orientation was negatively correlated to participation in development activities, whereas a high learning orientation was positively correlated with participation. In light of the findings of significant associations between participation in development activities and positive outcomes (for example, Maurer and Lippstreu, 2009), one could theorize that a high performance orientation is a negative attribute. However, some researchers believe that performance orientation is not always a bad thing. For example, Stern, Katz-Navon, and Naveh (2008) examined the number of errors attributable to residents in two teaching hospitals. They hypothesized that learning orientation would be negatively related to the number of resident errors and that one of the moderators of this relationship would be the degree of autonomy provided. Their results were mostly inconclusive, however they did note that the number of errors decreased as autonomy increased when high learning orientation was also present. There was some indication that learning orientation, combined with other factors could lead to more errors. These results were explained by the fact that an individual with higher learning orientation might be more apt to use riskier practices or new skills motivated by their desire to learn new things. With high autonomy, however, a higher onus was placed on individuals so they might limit their riskiness and undertake practices that have more certain results. Although there was some support for learning orientation, researchers

concluded that in cases where high degrees of technical skill are needed, learning orientation is only beneficial with the right moderators present, and that performance orientation might not be the worst case scenario.

These findings highlight an important concept. As with most human behaviour, a single explanation is not sufficient: the outcomes of learning orientation depend on the situation in which it is applied. Pawar & Eastman (1997) and Johns (2001) have observed that it is impossible to explain organizational behaviour without an explicit consideration of the organizational context. We explore some of the potential moderating contextual factors below.

Contextual Factors

There is some consensus among researchers that learning or performance orientation is present from a young age, and as such, many refer to it as a disposition (Carr, 2001). Past research suggests that dispositional traits are genetic and are associated with different brain structures and activities. For example, Lebreton et al. (2009) found brain structural differences in participants exhibiting varying degrees of disposition to social interaction. There is also, however, an environmental predictor of dispositional traits. For example, Hook, Worthington, and Utsey (2009) say that dispositional traits are highly correlated to one's culture. They use disposition to forgiveness as an example, saying that this disposition is highly linked to whether or not the individual is from a collectivist or individualist culture. This suggests two aspects to the development of a disposition – both inherited and learned. Similarly, there has been evidence of both of these development components in the literature relating to learning and performance orientation. While the heritable element of these dispositions is important, the learned aspect is the piece that can be more easily influenced by one's working environment and is of particular interest to human resource practitioners and organizational researchers.

Carr (2001) investigated the overall cultural effects on learning orientation by interviewing and observing the learning activities of four-year-old children in New Zealand in their natural pre-school setting using sound and video recording devices. He found that although learning orientation was present in children, they did not apply this orientation in all settings – the use of the learning orientation was dependent on the context of the activities they were performing. He identified six social identities that the children portrayed in different contexts, and some of these promoted the use of a learning orientation, while others promoted a performance orientation. The identities were highly rooted in cultural context. For example, 'being nearly five' was a strong identity for the children. In New Zealand, when children turn 5, they advance to grade school and move up to a 'big kid' role. The same might not quite ring true for Canadian children, for example. Children perceived 'being nearly 5', 'being good', 'being a boy/girl' and 'being a kindergartner' as being consistent with a performance orientation where they were to adhere to a social script and not pursue further exploration or learning. 'Being a technologist', and 'being a friend' however warranted the use of a learning orientation. Children felt that further exploration and development of these roles was both possible and desired. This study suggests that although a learning orientation might be present in an individual, it will not necessarily be applied in all settings, and that social context can influence this orientation. Only

where individuals feel that they can improve and develop and where it is socially acceptable, will they pursue learning.

Marshall (1987) also studied young children's orientation and situational factors. He observed how different teaching strategies in three fifth grade classes can create different learning environments. Each of the teachers used one of three different teaching methods: one supported a learning orientation, one supported a performance orientation, and one supported neither type of orientation. The first teacher built a learning oriented environment by encouraging students to challenge themselves, to take time to think before answering, and to ask questions. She reinforced this behaviour through proactive discipline strategies – saying that students who enter the room must be ready to learn and to focus on the task so that everyone around them can have the opportunity to learn. The second teacher created a performance orientation environment by using frequent threats of punishment if students did not re-direct their focus to the task at hand. She emphasized completion of the assigned tasks versus the learning process that students would use to accomplish them. She also regularly voiced her expectations of students, and expected more from students who were regularly higher performers, and less from lower performers, enacting the belief that one's abilities cannot be improved, which is consistent with a performance orientation. Finally, the third teacher simply stated the task at hand and if children got off-task, she would say little more than to redirect focus. If students made errors, she would state the correct answer without any further explanation. This type of behaviour did not emphasize either the possibility of development of abilities or achieving success. Although this observational study does not chart the student's performance over time, or look at whether or not this orientation had individual effects, it does demonstrate the different environments that can be built to support different learning behaviours.

Martinez (1999) looked more closely at how individuals with either learning or performance orientation are affected by different environmental contexts. He separated 71 participants (a mix of students and non-students) into three different groups to take a course on the world wide web. Each group was encouraged to elicit learning or performance behaviours. Martinez (1999) found that participants performed the best when their environment matched with their pre-disposed orientation. Consistent with other research (for example, Stern, Katz-Navon, and Naveh, 2008), Martinez (1999) demonstrated that orientation alone does not determine performance.

Martocchio and Hertensein (2003) performed a similar study, manipulating the environment and using an IT training course as a learning scenario. Clerical workers were given the task of completing training on computer software. A performance orientation environment was established for one group by encouraging participants to try to make as few errors as possible and stipulating that they only have one chance to perform the task. A learning orientation environment was established for a second group by telling participants that many people make errors and to focus on learning rather than getting 100% of the questions correct. Results indicated that individuals with a learning orientation performed best when they were in the learning orientation environment.

The previous research demonstrates that although an individual might have a disposition to a learning orientation or a performance orientation, this disposition alone is not enough to produce results. Individuals can be influenced by how they believe they are supposed to act in a situation and can be heavily influenced by situational cues and contextual factors such as language used by administrators (Marshall, 1987; Martocchio and Hertensein, 2003), social scripts (Carr, 2001), or even degree of autonomy they are awarded (Stern, Katz-Navon, and Naveh, 2008). This is an interesting lens through which to examine the financial crisis of 2008/2009 which began in the United States and spread throughout the globe. With a popular outcry of how and why this could have happened, we asked whether there could have been interplay between organizational culture and individual behaviour. Clearly, many factors were involved, and the explanation is multidimensional. However, we considered the specific question of whether a learning or performance orientation might have been used by relevant employees, and what contextual cues in the organizations in question might have encouraged one or the other and subsequently elicited behaviours that contributed to creating the sub-prime mortgage bubble, and the illegitimate rating of low-grade securities.

Examining the Subprime Mortgage Crisis

What Happened?

The end of the 1990s left the United States in a recession following the burst of the technology bubble, and this was further intensified by the 9/11 terrorist attacks in 2001, leaving the U.S. with a weak economy and low spirits. In response, the Federal Reserve cut lending rates to approximately 1% and Americans were encouraged to buy anything and everything in order to stimulate the economy. Mortgage rates dropped below levels at which they had been for 40 years and the housing market became very attractive (Barnes, 2010). Additionally, potential homeowners were greeted with a variety of mortgage options, designed to encourage them to buy bigger and more expensive houses (Barnes, 2010). Individuals with poor credit rating and without certain future cash flows were able to get mortgages at very favourable rates with an extremely low initial payment, creating a large number of subprime mortgages to be issued. By 2007, at least 20% of the U.S. mortgage market was made up of these subprime mortgages (CBC News, 2007). In order to be able to issue even more mortgages, mortgage lenders began to sell repackaged versions of bundles of receivable payments from interest and principle payments due (Tully et al., 2007). These new instruments were then sent to rating agencies, who, using no historical data, and being unable to accurately predict the payoff and default rates, would provide a credit rating (Tully et al., 2007). These instruments – collateralized debt obligations (CDO) – would be purchased by consumers. The consumers of these CDOs included Merrill Lynch (a ratings agency that did not typically take on this type of investment), hedge funds, pension funds, and other consumer groups (Tully et al., 2007). By 2006, mortgage holders began to default on their payments (Barnes, 2010). Although the low initial rates helped individuals obtain the mortgages, the rates would increase and the consumers were no longer able to afford the payments (Barnes, 2010). Once mortgage holders began defaulting on their payments, the CDOs began to look less attractive and the market for these instruments dried up, leaving whoever was holding them at the time to absorb the losses (Barnes, 2010).

It is obvious that mortgage lenders issued a large number of mortgages to prospective homeowners in the United States in the early 2000s. Using teaser rates and allowing people with low credit scores to obtain large mortgages, there were many people who had received mortgages who would not have qualified under different circumstances (Barnes, 2010). Were the actions of the lenders consistent with a performance orientation or a learning orientation?

One might argue that the use of teaser rates and other activities to entice customers was a type of innovation, and as such, that these actions are consistent with a learning orientation, however there seem to be few other similarities. Because it has been found that the context elicits a certain type of orientation, we assumed that there would be one orientation that is dominant due to the exposure to the same environment (Martinez, 1999). We examined the finance industry as a whole to determine if one orientation appeared to be dominant.

The Finance Industry and Learning Orientation

As previously noted, learning orientation is demonstrated in environments in which there is a strong desire to improve one's own abilities and acquire new knowledge (Bunderson and Sutcliff, 2003). It would thus be expected that significant innovation would be present within the finance industry. Although it does appear that some innovation occurred, with a stronger emphasis placed on different rate packages, credit default swaps, and some new ratings methods, many of the new products were being offered to consumers were variations on existing practices and policies (Barnes, 2010). Mortgage lenders relied on existing skills and competencies to create more favourable packages to offer consumers – low initial payment with adjustable rates (Barnes, 2010). Similarly, although CDOs became much more popular during this period than they were previously, they are simply variations on other types of debt instruments. Therefore, we conclude that although some innovation occurred, they were not driven by the search for growth and knowledge, but rather a greater ability to perform.

The learning orientation should also lead to the attribution of failure to a poor strategy, and should cause actors to constantly re-evaluate their strategies and gain a great deal of insight from past failure (Bunderson and Sutcliff, 2003). In this industry, this would be characterized by evidence that lending strategies or CDO issues were constantly evaluated and altered. Additionally, because of the emphasis placed on evaluation and reflection, past mistakes would not be repeated. Contrary to this, the strategies remained fairly consistent through most of the 2000 until 2006 when lending companies could no longer sell their receivables, and as a result, had no more credit to issue (Barnes, 2010). In the past, the finance industry has seen other bubbles similar to the housing bubble that spawned the heavy issuance of mortgages. The burst of the tech bubble, for example, at the end of the 1990's was very similar to the recent housing bubble. The tech bubble was plagued by hard-to-calculate returns, a lack of historical data with which to estimate future gains or losses, and heavy speculation (Anderson, Brooks, and Katsaris, 2009). Were a learning orientation at play, the problems associated with the tech bubble would not have been repeated. Therefore, we conclude that there is little evidence of the existence of a learning orientation within the finance industry.

The Finance Industry and Performance Orientation

The indicator of a performance orientation is a reliance on current knowledge and skills to perform tasks, with no desire to acquire new skills and knowledge (Bunderson and Sutcliff, 2003). The lending practices and creation of mortgage-based CDOs were not wholly new practices, but rather were simply variations of old practices (Barnes, 2010). Another example of this type of action is seen in the credit rating agencies. Credit rating agencies were responsible for rating the newly formed CDOs, providing their opinion on the level of risk attached to each. Through the calculation of the rating agencies, CDOs that were made of a mix of low-rated mortgages, were rated at an AAA level – making them as risky as a government t-bill that has essentially zero risk of default (Norris, 2007). They were able to do this because there was little historical data to properly assess the risk level. For this reason, they continued to use old risk calculation methods or rely on pure guesses (Barnes, 2010). This is in line with a performance orientation. Rather than creating new models that would be more suitable to rate these securities, they chose to use existing skills and competencies and provide an illegitimate rating (Barnes, 2010).

The second main element of a performance orientation is the avoidance of criticism and defensive response (Porter and Tansky, 1996). It would be expected that parties involved in the crisis would ignore criticisms in favour of positive ones in the presence of a performance orientation. It appears as though that is precisely what happened. Though there was knowledge of the past tech bubble failure, and numerous indicators pointing to the eventual collapse of the housing bubble, the lending of mortgages and the trading of CDOs persisted (Barnes, 2010). Defaults on subprime mortgages began as far back as 2004, and instead of recognizing this as a sign of potential future distress, lenders closed their eyes blindly and continued to ride the housing bubble wave (Langley, 2008). Similarly, rating agencies saw the magical transformation of low-grade securities into nearly risk-free instruments and did not flag this as a warning sign (Norris, 2007).

Therefore, we conclude that the performance orientation is consistent with the activities of the finance industry during the subprime mortgage crisis. What environmental factors might have contributed to this orientation? Below we outline some of the environmental cues that reinforced a performance orientation.

Environment

There are different situational factors that may have contributed to the adoption of a performance orientation. The macro factors we explored are related to the American national culture itself, while the micro factors are related to the activities present in the finance industry.

Macro

When the housing bubble was just starting to grow, the American economy was emerging from a recession caused primarily by the bursting of the tech bubble. Additionally, the 9/11 terrorist attacks had just happened and this lowered the spirits of Americans (Barnes, 2010). In response, the US Federal Reserve lowered interest rates in attempt to stimulate the economy and encourage American to buy more things (Barnes, 2010). This strategy is consistent with the

concept of the 'American Dream' (Whitfield, 1991). The 'American Dream' heavily emphasizes being who you want to be, doing what you want to do, owning what you want, and living large (Greider, 2009). America has become associated with mass-consumption (Matsuyama, 2002), overindulgence, and instant gratification (Locke, 1996; Zuckerman, 2008). In 2005, President Bush said that the low-rate, subprime mortgages helped to promote the American dream and allowed the possibility of ownership for Americans (from Langley, 2008). This type of culture helped create a market for these subprime mortgages where everyone wants to own their dream home. For mortgage lenders, the high demand would certainly encourage them to offer as many mortgages as they can, hoping to make money from the repayment. Consistent with a performance orientation, lenders might look toward the end possibility of success rather than the means of getting there (Porter and Tansky, 1993).

An additional macro environmental factor is the relative lack of emphasis on the learning process that characterizes American culture. Li (2002) concluded from his research that, in American culture, there is a greater focus on success from the completion of a task or learning activity, whereas in the Chinese culture, learning is a continuing process that should have no end and there is a greater focus on the learning itself rather than the end. Therefore, it appears that national culture may partially predict a lower level of natural learning orientation (Gong and Chang, 2007).

Micro

Micro environmental factors are associated with the culture of the American finance industry itself. Following the tech bubble, financial industry employers wanted to ensure that they would continue to attract the best and brightest employees. As a result, large compensation and bonus packages became the norm, even for new employees (Anderson, 2000). For example, in 2009, \$20.3 billion were paid in bonuses to Wall Street firms (Leondis, 2010). Additionally, many organizations consider employees who are not experts to be expendable (Anderson, 2000). This organizational value reinforces the performance mentality, creating a culture of fear of making mistakes, and consequently stifling innovation and learning, as employees try to be the best at one thing instead of seeking to expand upon a knowledge base. This is exemplified by the widespread use of forced ranking performance appraisal systems, such as practiced at General Electric under Jack Welch, in which the bottom 10% of performers each year were terminated (Lawler, 2002). This focus on the end result versus the means taken to get there can heavily contribute to a performance orientation (Marshall 1987).

Prescriptions Going Forward

Carr's (2001) study suggests that an individual's perception of what is socially acceptable behaviour for them in certain situations will influence which orientation they will adopt. For example, children in Carr's (2001) study felt that the role of 'being a technologist' was a role in which a learning orientation as socially desirable, whereas 'being good' had a predetermined social script that did not allow for adaptation. Therefore, it is important that managers in financial institutions provide a message that a greater learning orientation is desired. Although it might seem that a learning orientation does not necessarily mix with finance, it was demonstrated in Gong, Huang, and Farh's (2009) study of insurance agents, that creativity in a finance-related

field can lead to higher performance. Additionally, Levinthal and March (1993) believe that a learning orientation causes an organization to be more agile and adaptable when faced with changes in the environment. Environmental changes were all too present in the subprime mortgage crisis. Perhaps when customers began defaulting on mortgage payments, a learning orientation might have been enabled lenders to identify and address the issue before it reached crisis stage. A performance orientation is more focused on existing skills and existing tasks, so individuals in this type of organization will not likely have developed the skills necessary to analyze and take appropriate action in a new problem situation (Levinthal and March, 1993).

There are lessons to be learned from Marshall's (1987) study of fifth graders. The research specifically examined how school lessons are framed, how the teacher addresses errors, how attention is focused on the task, learning and evaluation responsibility, expectations and standards set for the students, and general management. The most relevant of these elements in the case of financial institutions is how lessons are framed, how errors are treated, and expectations and standards set. In an institutional context, 'how lessons are framed' is analogous to how workers are given tasks. In Marshall's learning orientation environment, the teacher gave tasks and assigned focus to the means to get to the end versus the end itself. Obviously, the bottom line results in a financial organization are important; however, with more focus on the strategies used to achieve those results, a learning orientation might be elicited. The treatment of errors played a large role in Marshall's (1987) study. The learning orientation teacher would encourage students to figure out what led them to the wrong answer while the performance orientation teacher would publicly announce student's errors and make the students correct their errors. In an organizational setting, this is associated with the treatment of errors on the job. If employees are pitted against one another to achieve the lowest error rate and maximize results, it may increase a sense of competition, but also limit the amount of learning that occurs. And certainly, the threat of termination for trying and failing discourages innovation, learning, and a host of employee attitude disfunctions. The creation of expectations and standards is important in financial institutions as in the fifth grade class Marshall (1987) studied. If expectations are set too high, and too much focus is placed on achieving a successful end result, the learning aspect will be suppressed. Finally, as in Martocchio and Hertensein's (2003) study, it is important to deliver a consistent message through all of the previously discussed mechanisms so there are not conflicting identities being set out for employees. Although these prescribed lessons are brief, they are a starting point for managers of financial institutions who hope to benefit from the high performance and adaptability associated with a learning orientation. These leaders can learn how to strengthen their organization's learning orientation from the robust literature on organizational culture. Perhaps this shift can contribute to a more ethical and grounded financial industry and prevent a similar future crisis from occurring.

There is clear evidence that a learning orientation could have been beneficial to the financial industry during the recent crisis, especially when it came to responding to the issues as they emerged. However, Stern, Katz-Navon, and Naveh (2008) found that in high risk professions, such as the medical profession, a performance orientation can also be beneficial. The study of medical residents showed that although individuals who were more focused on learning were more innovative, their end results were not necessarily successful when performing routine tasks. The presence of autonomy and voice influenced the efficacy of the learning orientation in this environment. It is possible, however that when faced with non-routine problems, a learning

orientation may have helped physicians adapt. In the financial crisis, there were many environmental changes and had more of a learning orientation been used, it is likely that rather than trying to perform the best with the instruments brokers and ratings agencies were already using, they might have adjusted their behaviours and continued to have industry-wide success for all stakeholders. In conjunction with the various articles supporting learning orientation that have been discussed, Stern, Katz-Navon, and Naveh (2008) suggest that in a high risk environment, a proper balance must be achieved between learning orientation and performance orientation. Where there was little to no evidence of the existence of learning orientation and a strong performance orientation in the financial industry, it would be suggested that more focus be placed on developing a learning orientation to support non-routine behaviours. In research to date, there have been few studies that address the differences between high-risk and low-risk work settings, and achieving a proper mix of learning and performance orientation, and it is recommended that future research be done in this area as there is clear value.

Conclusion

We have demonstrated that performance and learning orientation lead to different behaviours and consequences. Whereas learning orientation is linked to positive individual and organizational outcomes (Martocchio and Hertensein, 2003; Gong, Huang, and Farh, 2009), performance orientation is negatively linked to performance (Bell and Kozlowski, 2002; Maurer and Lippstreu, 2008) and the ability to adapt (Levinthal and March, 1993). Although individuals may have a natural inclination toward one orientation, it is clear that situational factors have an impact on which orientation will be elicited (Marshall, 1987; Stern, Katz-Navon, and Naveh, 2008; Martocchio and Hertensein, 2003). We used the recent financial crisis as an example of how situational factors can influence the activation of orientation or the other, and concluded that a performance orientation was elicited through the environment surrounding the crisis. Specifically, macro environmental factors were related to the quest for the American Dream, and an overall cultural inclination away from a learning orientation. Micro environmental factors included the compensation schemes and emphasis on generating end revenue versus the means used to get there. We hope this exploratory analysis will highlight the existence and importance of learning and performance orientations, and the potential issues with the reliance on the latter alone. It should cause organizations, especially in the finance industry, to consider implementing strategies to encourage learning orientation to increase organizational performance and adaptability to a changing environment.

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THE IMPACT OF MANAGERS' WORK HOURS ON EMPLOYEES' USE OF PARENTAL LEAVE

This study examines how a company's family-friendly culture affects the probability of an employee's use of parental leave. Using a national representative and linked employer and employee survey, this study finds that a long-hour organizational culture, which is revealed through managers' work hours, discourages new parents from taking parental leave.

Introduction

The increasing participation of women with young children in the workforce has increased the demand for employers and policymakers to offer organizational practices and public policies to help employees balance their work and personal lives. Many companies and governments have adopted paid parental leave programs to achieve this objective.¹

However, as pointed out by Eby, et al. (2005), simply offering the benefits may not be useful if employees do not actually use them. A survey of female university faculties revealed that 77% thought that taking parental leave would negatively affect their career development, and

¹ **In 1990, the Canadian government introduced the Parental Benefits Program (PBP), which offered 10 weeks of paid leave, available for sharing by qualifying parents to take care of their newborn. Amendments in 2001 to the Employment Insurance Act extended the PBP benefits to 35 weeks and eliminated the second two-week waiting period if both parents wanted to use the leave. As of 2009, parental leave-takers can receive 55% of their previous earnings, capped at \$477 a week. Some large employers in Canada, such as the University of Toronto, provide top-up benefits that pay the difference between the Employment Insurance (EI) benefit from the federal government and 95% of the salary.**

only 30% took full parental leave after giving birth to or adopting a child (Finkel et al., 1994). This underutilization of family leaves dissipates the employer's and government's efforts and financial resources in the quest to balance employees' work and life.

Some researchers have realized the importance of utilization of leaves in helping employees balance work and life and have discussed the possible positive roles it plays in job satisfaction, commitment, and the organization's productivity (Sahibzadam, et al., 2005; Thompson, et al., 1999). However, only few studies have investigated the reasons why some employees prefer not to use the available leave benefits. In addition, little of this research represents studies done in North America. For example, a study of 30 European countries by Plantenga and Remery (2005) found that five factors determined whether a parent would take parental leave or not—finances, the expected role for women and men, program flexibility, the labor market, and the parents' educational level.

However, these studies are not complete and have their limitations. First, most of the research is based on self-reported measures (employees) collected at a single point in time. Thus, issues such as respondent consistency motifs or response styles, transient mood states, and spurious results due to common method bias are of concern (Podsakoff and Organ, 1986). Second, these studies surveyed employees' willingness to take parental leave and the perceived reasons behind it. They failed to examine the actual behaviour of taking parental leave.

The present study extends the existing literature and improves on previous empirical research in several ways. (1) This study uses a linked employer and employee survey and obtains dependent and independent variables from different sources. This addresses the problem of common method variance (Podsakoff and Organ, 1986). (2) The study examines employees' actual behaviours in taking parental leave and explores the objective reasons for not taking the leave. Based on the theory of work-family culture (Thompson et al., 1999), the study investigates how a manager's work hours influence the employees' likelihood of taking paid parental leave and how this effect differs between women and men. (3) Finally, the large, national representative dataset used in this study enhances the external validity of the findings.

Theories and Hypotheses

Work-family culture

Thompson et al. (1999) defined work-family culture as “the shared assumptions, beliefs and values regarding the extent to which organizations value and support the integration of work and family lives, for women and for men” (p. 394). Work-family culture may either advance or thwart the effectiveness of work-life balance programs (Starrels, 1992). A supportive work-family culture reflects the existence of flexibility and alternative work arrangements, recognition of child and elder care issues, and the presence of highly supportive supervisors/managers (Thompson et al., 1999). In contrast, a contradictory culture emphasizes that (1) the primary obligation of employees is to their employers, (2) home and work should be separate spheres, and (3) home life is not the concern of the organization (Jones, et al., 2006: 5). Although there is no

agreement as to what the construct of work-family culture should include, current literature argues that work-family culture includes several distinct dimensions, such as managerial support, organizational time expectations, career consequences, gendered perceptions of policy use, and coworker support (Lautsch, et al., 2009; McDonald, et al., 2007; Thompson et al., 1999).

Work-family culture is found to be significantly associated with the utilization rates of work-family benefits (Allen, 2001; Breaugh and Frye, 2007; Sahibzada et al., 2005; Thompson et al., 1999; Thompson, et al., 2004). It can influence an employee's perception of the acceptability or the possible consequences of taking parental leave (Thompson et al., 1999). In a company that rewards employees for working long hours, taking parental leave will not be consistent with the underlying culture, and employees will be less likely to take parental leave (Perlow, 1995; Thompson, et al., 1992). Burke (2006) also pointed out that organizational culture is the key to the success of work-life integration. He argues that when the culture is supportive, employees are more likely to use work-life balance programs. Those leave-takers are more committed, less likely to quit their jobs, and report less work-family conflict (Thompson et al., 1999). Employees are less likely to use work-life balance programs if the organization's work-family culture is not friendly.

A typical component of an unfriendly work-family culture is the long-hour culture (Kodz, et al., 1998). In this culture, organizations have a norm of visibility; the perception is that workers who are visible in the workplace from early morning to late night are more valuable and committed, irrespective of their level of productivity. Employees work more time on the job as an investment in human capital to increase the possibility of being promoted in the future (Golden, 2009; Michelacci and Pijoan-Mas, 2007). These types of organizations take long workdays for granted, praise individuals for working long hours and view extra hours of work as signs of dedication and engagement.

In those companies, questioning short hours is feared to be a negative signal (Yakura, 2001). Employees put their careers at risk when taking parental leave, because it makes them less visible at work. In one organization that Kodz et al. visited, which featured a long-hour culture, the managers preferred their employees to finish their task at the workplace rather than take work home (Kodz et al., 1998). In some organizations, the culture was deep-rooted to such an extent that when the senior managers were trying to discourage long hours, employees thought that it was just window dressing and strongly believed that the managers indeed valued long hours at work (Kodz et al., 1998). Thus, it was concluded that only employees with "great strength of character and assertiveness" dared to say "no" to long-hour work (Kodz et al., 1998). Most of employees working in companies with long-hour expectations are reluctant to take time off to attend to family responsibilities because they fear that their careers will suffer if they do not follow the company's rules (Hammonds, et al., 1997; Morris, 1997).

Managers' work hours

Managers play an important role in the formation and transmission of an organizational culture (Schein, 1999; Valentino and Brunelle, 2004). Managers and their behaviors intertwine

with culture creation, transformation, and destruction (Schein, 1992). With respect to the work-family culture, managers have the power to make implicit and explicit choices regarding the adoption of workplace practices (McDonald, et al., 2005: 41; Schneider, 1990). In addition, managers can discourage employees from using some work-life balance programs, such as parental leave, by punishing leave-takers. Most importantly, managers can convey the company's value of working hours through their model behaviors.

“Deliberate role modeling” is one of the most powerful primary mechanisms by which managers are able to embed and reinforce a culture (Schein, 1992: 225). Through their behaviors, managers can communicate a company's basic assumptions, guiding beliefs, and principles. When managers themselves work long hours, they may send a signal to the employees that their company values long hours of work, and that the belief of the company is that an employee is committed if he or she works long hours and is seldom absent from the workplace. Gradually, the assumptions, beliefs, and values conveyed by this behavior generate a long-hour work culture.

In fact, some researchers have argued that managers' work hours are the most important determinant in the development of this type of long-hour work culture (Hammonds, 1997; Morris, 1997). For example, if the managers work for long hours and send emails and memos to subordinates at 3 a.m., then their employees may interpret these managerial behaviors as an indication that a long-hour culture exists (Hammonds, 1997; Morris, 1997). The study by Kodz et al. (1998) revealed an authentic example: in the organizations they examined, there was a perception that because managers worked for long hours, there would be an expectation for employees to follow the managers' example. In their interviews, employees working under managers who worked for long hours reported that “If he's still there, you can't go home” (Kodz et al., 1998: 32). Thus, employees may feel reluctant to take family leave as they fear that their careers will suffer if they do not follow the managers' rules and models.

In addition to reinforcing an unfriendly work-family culture, a manager who works long hours might also send a signal to employees that he/she does not support subordinates devoting time to issues other than work. In a research by Higgins, et al. (2008) on how managerial support helps employees to balance work and life, long hours were found to be a major component of nonsupportive managerial behaviors. Nonsupportive managers may subvert the existing paid leave policies by refusing to allow their employees to avail of those benefits (Thompson et al., 1999). Judge and Colquitt (2004) observed that “even the best parental leave procedure cannot overcome supervisors who forbid their employees from using it” (p. 402). Employees who report to a manager who works long hours and expects the same from employees are unlikely to say “no” to long working hours and/or to take parental leave. Based on the above discussion that work-family culture influences the employees' likelihood of taking parental leave and managers' long work hours indicate an unfriendly work-family culture, the following hypothesis is developed:

Hypothesis 1: Managers' work hours will negatively correlate with employees' likelihood of taking parental leave.

Gender Differences of the Effect

The limited research on gender differences with respect to taking parental leave uncovered four factors that prevent fathers from taking parental leave. These include gender role expectations, gender stereotypes, lack of social support and economics (Hass, 1991; Hyde, et al., 1993; Plantenga and Remery, 2005).

According to gender role expectations, women are considered to be responsible for the majority of childcare and household tasks (Greenberger and Goldberg, 1989; Hochschild and Machung, 1989). The “motherhood mandate” (Russo, 1976) indicates that the priority of the mother is to care for her children and that commitment to work should be secondary. In contrast, the gender role expectation for men is that they need to play the traditional role of breadwinner for their home. Accordingly, a good father is the one who can provide financial security to the family, even if he has to work long hours and sacrifice the time spent with his family. Any deviation from these expectations will result in a negative employee evaluation. Because of the perception that taking parental leave is less congruent with the male role than with the female role, men may be less likely to take parental leave than women. Those male employees who do take parental leave are viewed as not being serious about their careers (Hall, 1989; Norman and Tedeschi, 1984) and may experience negative career results (Allen and Russell, 1999; Lyness and Judiesch, 2001).

Research on sex stereotypes found that men and women have different sets of attributes (Spence et al., 1975; Heilman, 1989). Men are stereotyped as having instrumental skills that lead them to be independent, ambitious, assertive, skilled in business, and competitive (Spence, et al., 1975). Therefore, there is an expectation for men to be fully engaged in work and rarely being absent from their workplace. In contrast, women are considered to be emotional, considerate, and home-oriented (Spence et al., 1975). Women are expected to spend more time at home than at their workplace. Thus, conforming to this stereotype, male employees avoid taking parental leave. Pleck (1993) interviewed 142 fathers and found that although 87% of them took some days off after the arrival of a newborn baby, half of these days were vacation and sick leaves, and the other half were discretionary days; none of these fathers took official parental leave.

Lack of social support has been found to be one of the factors that makes the fathers reluctant to take parental leave—they are afraid of negative opinions from their relatives, friends, and colleagues (Hass, 1991; Hyde, 1993). In fact, the majority of the male parental leave-takers in Hass’s (1991) study did not get any support from either their parents or friends. When the fathers are less likely to get support for taking parental leave, they are less likely to take parental leave (Hyde, 1993).

In addition, economic factors also come into play because, normally, fathers earn higher salaries than mothers. Thus, if a leave is not fully paid, then the financial loss to a family due to the father taking parental leave will be greater than that when a mother takes parental leave.

All these factors together prevent fathers from taking parental leave, and it would be reasonable to predict that men need more encouragement and incentives than women, when it comes to availing parental leave. This prediction can be rationalized through Pleck’s (1979)

sensitization theory. This theory suggests that psychological involvement in a role acts primarily as a sensitizer to interference effects, making the individual become more aware of the problems within that role. In other words, this can indicate that even when both men and women work with a manager who works long hours, men may be under higher levels of pressure to follow the manager's long working hours. This is because their psychological involvement in a man's role makes them more sensitive to the effect of managers' work hours, which results in men being more aware of the negative career results of taking parental leave. This allows positing the following hypothesis:

Hypothesis 2: Managers' work hours will have a greater negative effect on the probability of male employees taking parental leave than female employees.

Method

Data

This study used data obtained from the Workplace and Employee Survey (WES), which is developed and administered by Statistics Canada. The WES is considered an ideal data set for investigating the effect of managers' work hours for the following reasons:

- (1) The survey is designed to represent all workplaces operating in Canada;
- (2) A subset of workers from each workplace is sampled to represent all workers in Canada;
- (3) The survey generates linked employer-employee information, which makes it possible to obtain dependent and independent variables from different sources. This helps to reduce the problem of common method variance because of the use of self-reported measures from a single source;
- (4) The linked nature of the survey also allows for the inclusion of controls at both the firm and the employee level. However, the current literature includes controls only from either the employer or the employee.

The study involved only employees whose employer offered a parental leave and who were eligible for parental leave because they had a child younger than one year old during the survey period. The final sample size was 874.

Dependent variable

The dependent variable is whether employees took parental leave in 1999. The 2000 employee survey asked employees the question, "Have you taken any parental leave in the past twelve months?" The dependent variable "taken parental leave" was coded as a binary variable with a value 1 for "taken" and 0 for "not taken."

Independent variable

The definition of managers' work hours was the average work hours of a manager in a company. The 1999 workplace survey asked employers to estimate how many paid hours their managers worked in a normal week.

Control variables

Variables from both workplace and employee sides that had a potential relationship with the dependent variable were included as control variables in the regression equations.

The most important control variable was the number of work–life balance programs provided by a company. In addition to managers' work hours, work–life balance programs are also considered as a major part of work–family culture. The existence of these practices reveals that the employer respects employees' personal lives, is ready to help employees when there is a family crisis, and permits the discussion of personal and family needs in the workplace. These practices send a psychological signal to employees that their employer cares about them as people, and not just as employees. Earlier studies found that by offering family-friendly practices, employers can enhance employees' perception that the employer invests in and cares about its employees, and is supportive of employees' personal lives (Kossek, 2005; Jahn, et al., 2003; Lyness, et al., 2005). Thus, when employees believe that the work environment is family supportive, they become more confident in taking parental leave. They do not fear that the use of benefits will have a negative effect on their future career prospects within the organization.

The WES 1999 survey asked employees whether any of the five work–life balance practices (on-site daycare, elderly care programs, employee assistance programs, fitness and recreation programs, and other family support) were available to them. A sample question was: "Does your employer offer help for childcare either through an on-site center or assistance with external suppliers or informal arrangements?" Work–life balance availability for each practice was answered either with a "yes" or "no." "Yes" answers scored a value of "1," whereas "no" answers scored a value of "0."

A multilevel analysis carried out by Kopelman, et al. (2006) found that at both the individual and group levels, the number of work–life balance programs offered was related to employee attitudes such as commitment and job satisfaction. Consistent with the study by Kopelman et al. (2006) and other research (Osterman, 1995; Thompson et al., 1999, 2005), a composite work–family benefit availability score was created in this study by summing up the responses across the five items for each response. The score has a value of 0–5, and the alpha value for the scale is 0.84.

Other control variables from the employee survey are gender (female = 1; male = 0), age (in years), race (white = 1; others = 0), education (four dummy variables: less than high school, some high school, some college, above college), marital status (1 = married or living with partner; 0 = not married), organizational tenure (in months), years of working experience, number of children younger than 13 years, family income (in thousand dollars), hourly wages (in dollars), employee status (full time = 1, part time = 0), and covered by a collective agreement (yes = 1, no = 0).

Organizational level variables include the size of the company (**logarithmic form** of the number employees), industry (14 categorical variables), and nonprofit status (not-for-profit = 1, profit = 0). All these variables were obtained from the 1999 survey, which is in concert with the year in which employees took parental leave.

Analysis

In this study, the hierarchical probit regressions were used to test Hypothesis 1, with control variables introduced in the first step, followed by the variable of managers' work hours. The likelihood ratio test was used to test whether the addition of managers' work hours would lead to a statistically significant improvement in the fit of the model. To test Hypothesis 2, separate probit regressions analyses were carried out for female and male employees.

Results

WES data were collected using a stratified sample design. Thus, it is important to incorporate sampling weights and strata parameters in the data analyses (Sarndal, et al., 1992). The results reported in this study employed weighting stratification parameters in probit procedures. Table 1 provides the means, robust standard errors, and intercorrelations, while in Table 2, the probit analysis results are presented, which show the marginal effect and robust standard errors. The overall test of the explanatory power of all the control variables (Model 1) is significant (as revealed by the Wald chi-square test of joint significance).

INSERT TABLE 1 AND TABLE 2 ABOUT HERE

Hypothesis 1 predicts that managers' work hours would be negatively related to the probability of taking parental leave, and Model 2 supports this hypothesis. In this model, the variable of managers' work hours has significant coefficients in the predicted direction. The likelihood ratio test that examines whether the full model with the variable of managers' work hours is significantly better than the model with only the control variables, is significant (chi-square =10.32, $p < 0.005$). The coefficient indicates that a one-hour increase in the managers' work hours will decrease the probability of employees taking parental leave by 3.2 percentage points. Therefore, when compared with managers who work 40 hours a week, those who work 45 hours a week will decrease their employees' probability of taking parental leave by 16 percentage points. Furthermore, when compared with the mean of the dependent variable (0.32), the magnitude of the coefficient is substantial. The results show that managers' work hours have a clear negative impact on the probability of taking parental leave.

Surprisingly, the number of work-life balance programs, gender, or family income is not significantly related to the probability of taking parental leave. This indicates that these widely

researched antecedents do not have any influence on the Canadian workers who participated in the survey. Another possibility is that the dependent variable is the actual process of availing parental leave, but not the number of days of parental leave taken. Hence, it is possible that while these factors do not affect the probability of taking parental leave they do affect the amount of leave taken.

Hypothesis 2 predicts that the effect of managers' work hours is different for women and men. The regression results of Model 3 and Model 4 support this hypothesis. Model 3 presents the regression results for male workers. The coefficient is -0.038 ($p < 0.001$), indicating that a one-hour increase in the managers' work hours decreases the probability of male workers availing parental leave by 3.8 percentage points. Model 4 presents the regression results for female workers, in which coefficient was -0.018 ($p < 0.001$), indicating that a one-hour increase in the managers' work hours decreased the probability of female workers availing parental leave by 1.8 percentage points. Thus, it can be concluded that the managers' work hours clearly have a stronger effect on men than women.

Discussion

The present study makes a number of unique contributions to the work–family literature concerning the determinants of taking paternal leave. Although many countries have established the right to take parental leave, research on parental leave is still limited. Furthermore, earlier research on this topic focused on the gender differences in the patterns of availing leave and the impact of leave on the employee's career results.

To date, information about a company's practices and culture towards parental leave is relatively limited (Plantenga and Remery, 2005). The present study helps to fill this gap by showing that an unfriendly work–family culture, especially as reflected by managers' long work hours, has a negative impact on the probability of employees taking parental leave.

Given that the organizational work–family culture affects the utilization of work–life balance programs (Allen, 2001; Thompson et al., 1999), identifying the factors that can contribute to a supportive and favorable work–family culture is an important endeavor. The present results demonstrate that managers' work hours are an important part of this culture. As noted by Schneider (1990), managers' behaviors communicate to employees what is valued and important in the organization. When employees perceive that the managers do not support the use of benefits, they may be apprehensive to use those benefits, despite their availability. By working long hours, managers gradually create a culture in which working long hours or having long periods of visible "face time" at the workplace serves as a prime indicator of productivity and commitment. This unsupportive long–hour culture clearly prevents employees from taking any type of family leave to meet the responsibilities at home.

The fact that the combined male and female analysis did not find any significant impact of work–life balance programs might indicate that managers and coworkers in the company are not supportive. Duxbury, et al. (1995) found that supportive managers and coworkers, but not the existence of work–life balance programs, correlated with the utilization of work–life balance

programs. The finding of the present paper confirms that providing some work–life balance programs alone may not be useful (Eby et al., 2005). However, this finding might be limited by data restrictions. The measure of work–life balance programs included only daycare, eldercare, employee assistant programs, and recreation programs. These programs are the only ones available on the WES questionnaire. It is obvious that not all employees can benefit from all these programs. For example, only people who have elderly to take care of are eligible for eldercare benefits, and only those who have time after work can afford to use recreation programs. As these programs are not applicable to all employees, they cannot generate employees' perception that the company takes care of them and supports them in taking parental leave.

The finding of no gender differences in the trend of taking parental leave appears somewhat inconsistent with earlier theories and other research (Greenberger et al., 1989). A possible explanation is that, in recent years, an important cultural shift has encouraged fatherhood and men's involvement in childcare (Daly, 2004). The gender role expectation is clearly changing in Canada (Doucet, 2006). Taking care of children is no longer considered as the responsibility of women alone, and more and more men are now beginning to spend time with their children. Another possible explanation is that this paper's research question is "What determines an employee's decision to take parental leave?" and not the decision regarding the duration of the leave. It is possible that some male employees take only a very short parental leave, whereas female employees take longer leaves. This paper considered all leaves as parental leave, regardless of duration. However, gender roles and social expectations have a more obvious influence on the decision regarding the duration of the leave than on whether to take any leave.

Limitations

This study has several limitations that need to be addressed. First, because of data restrictions, the paper did not include some work–life balance programs, such as flexible work hours, working from home, compressed work week, and telecommunication. Future research could develop a comprehensive measure of this construct by including all these alternative work programs. Second, the data does not enable us to take into account the duration of parental leave taken. According to human capital theory (Becker, 1985), a long absence from work will substantially decrease human capital and will have a negative impact on the leave-takers' career development. It is reasonable to presume that the factors that influence an employee's decision to take a one-week leave greatly differ from those used to decide on several months' leave. Future research can study these different factors, especially focusing on the aspects that can help an employee, who want to take a long parental leave to balance work and life. Finally, the paper used a linked employer and employee survey. Ideally, the study could have used a multilevel analysis to address the research questions. However, because of the limited sample size within each workplace (the average number of employees for each workplace was 1.7), the study did not use this technique. Future research could use multilevel analysis to obtain a more accurate picture of the relationship between managers' work hours and the probability of employees taking parental leave.

Implications

Utilization of family-friendly practices results in high productivity, employee commitment, and both actual and perceived improvements in organization performance (Breaugh and Frye, 2007). In addition, Grover and Crooker (1995) also found that employees who had access to and availed family leaves were more committed to their employers than those who did not. Thus, if employers want to promote positive employee attitudes and behaviors by facilitating the benefit of family leaves, then they should consider the fact that long managerial work hours deter employees from taking leaves. This could entail employers to become more proactive in encouraging employees to take leave and in lessening the worry about retribution from managers who work long hours. It may also entail stricter enforcement of legislative rights regarding parental leave to balance employees' work and life. The present research indicates that organizations need to alter the behavior of their managers and supervisors to create a family-friendly culture. Providing work–family training to managers may help in communicating the importance of this issue. Sensitizing supervisors to the fact that productivity is not always a function of hours at the desk or perfect attendance records may also be useful for promoting a family-friendly working environment, and thus encouraging employees to take leaves.

Parental leave constitutes a major component of government policies for promoting work–life balance. An earlier research found that taking parental leave (especially father's participation) had a positive effect on the social, emotional, physical, and cognitive development of children (Allen and Daly, 2007). A good way to encourage parents to take parental leave is for the government to provide a high-wage replacement rate for leave-takers. Policymakers can also provide individual nontransferable periods of leave for each parent.

The Canadian policy is supportive of long periods of parental leave, but the use of this long leave by male employees remains low (Marshall, 2008). To encourage more males to take long leaves, both the government and employers can work together to change sex-specific social roles. Employers can de-emphasize gender-based expectation in their formal rules and informal practices to make it easier for men to become active in childcare. Furthermore, public policymakers can implement some family leaves that would target only men. Other possible government initiatives could be to heavily subsidize daycare and promote gender equality through the mass media.

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Table 1:

Weighted Means, Standard Errors and Correlations ^a

Variables	Mean	s.e	1	2	3	4	5	6	7	8	9	10	11	12
1. Taking parental leave (1=Yes; 0=No)	0.28	0.03												
2. Managers' work hours	39.12	0.21	-0.18*											
3. Gender (1=female; 0=male)	0.38	0.04	0.06	-0.05										
4. Family income (in \$1000)	6.88	0.25	0.01	0.03	-0.10*									
5. Marital status (1=Married; 0=Single)	0.75	0.04	0.07	-0.02	-0.08	0.27*								
6. Race (1= White; 0=Non-White)	0.91	0.01	0.03	-0.00	-0.04	0.01	0.05							
7. Number of dependent kids	1.73	0.06	-0.10*	0.07	0.03	0.01	0.08	0.01						
8. Age	50.17	0.87	0.05	-0.07	-0.04	0.12*	0.23*	0.08	0.02					
9. Tenure on the job (month)	116.20	5.41	0.06	-0.07	-0.05	0.08	0.19*	0.05	-0.05	0.41*				
10. Years of experience	18.13	0.90	0.02	-0.01	-0.17*	0.14*	0.01	0.15*	-0.01	0.80*	0.40*			
11. Wages (\$ / hr)	19.73	0.77	0.01	0.02	-0.21*	0.60*	0.12*	0.03	0.01	0.21*	0.08	0.24*		
12. Full time employment (1=Yes, 0=No)	0.90	0.02	0.04	-0.02	-0.05	0.06	0.03	-0.06	0.05	0.02	0.07	0.08	0.06	
13. Professional (1=Yes; 0=No)	0.31	0.04	0.02	0.03	-0.04	0.30*	0.03	0.02	-0.04	0.10*	0.01	0.06	0.39*	0.03
14. Union coverage (1=Yes, 0=No)	0.33	0.04	0.10*	-0.10	0.02	-0.02	-0.03	0.00	0.01	0.11*	-0.05	0.03	0.02	-0.04
15. Work-life balance programs offered in the company	0.62	0.08	0.00	0.07	-0.05	0.16*	-0.02	0.03	0.04	0.04	-0.02	0.07	0.22*	0.08
16. Company size (log of total employees)	4.34	0.17	0.06	-0.18*	-0.01	0.05	-0.05	0.01	-0.07	-0.03	0.04	0.01	0.02	0.05
17. Non-profit (1=Yes; 0=No)	0.14	0.02	0.05	-0.25*	-0.01	0.07	0.01	0.02	0.05	0.01	0.07	-0.02	0.08	0.05
	13	14	15	16										
14. Union coverage (1=Yes, 0=No)	-0.13*													
15. Work-life balance programs offered in the company	0.14*	0.15*												
16. Company size (log of total employees)	0.04	-0.00	0.00											
17. Non-profit (1=Yes; 0=No)	0.00	0.08	0.03	0.18*										

^a $n = 874$ * $p < .01$ Source: Workplace and Employee Survey (WES), 1999, 2000. The sample means and robust standard errors are fully weighted to account for the complex survey design.

Table 2:

Probit Analysis of the probability of taking parental leave

Variables	Model 1	Model 2	Model 3 Male	Model 4 Female
Gender (female=1 male=0)	0.017 (0.059)	0.017 (0.059)		
Family income (in \$1000)	-0.013 (0.009)	-0.011 (0.008)	-0.011 (0.011)	-0.011 (0.013)
Marital status (1=Married 0=single)	0.103* (0.058)	0.111 (0.057)	0.060 (0.071)	0.162** (0.066)
Race (1=white 0=others)	0.039 (0.073)	0.027 (0.076)	0.056 (0.077)	-0.010 (0.110)
Number of dependent kids	-0.042 (0.031)	-0.037 (0.032)	0.037 (0.036)	-0.133*** (0.050)
Age (years)	0.008** (0.004)	0.008* (0.004)	0.013** (0.007)	0.003 (0.004)
Tenure on the job (months)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	-0.000 (0.000)
Working experience (years)	-0.006 (0.004)	-0.005 (0.004)	-0.012* (0.006)	-0.003 (0.005)
Weekly wage (in dollars)	0.002 (0.003)	0.003 (0.003)	0.002 (0.003)	0.007 (0.004)
Employment status (1=full time 0=part time)	0.113 (0.082)	0.121 (0.080)	0.085 (0.103)	0.153 (0.080)
Occupation (1=professional , 0=others)	-0.029 (0.062)	-0.029 (0.062)	0.165** (0.080)	-0.088 (0.091)
Collective agreement (1=covered 0=not covered)	0.086 (0.058)	0.081 (0.057)	0.106 (0.067)	0.128 (0.084)
Number of employees in the company (logarithm)	0.010 (0.015)	0.010 (0.015)	0.012 (0.017)	0.014 (0.021)
Profit status (1=non-profit 0=profit)	0.049 (0.098)	-0.021 (0.087)	-0.120 (0.068)	0.014 (0.136)
Number of work-life programs offered	0.004 (0.024)	0.001 (0.025)	-0.012 (0.026)	0.032 (0.037)
Managers' work hours		-0.032*** (0.010)	-0.038*** (0.013)	-0.018** (0.008)
Mean of the dependent	0.28	0.28	0.26	0.30
Wald test of joint	62.47***	74.81***	95.97***	71.38***
-2 log likelihood ^a		10.32***	9.58***	5.08***
Number of observations	874	874	517	357

Notes: * $p < .1$, ** $p < .05$ *** $p < .01$. Each entry reports the marginal effect and robust standard error (in parentheses) weighted by workplace sampling weights. Education and industry tests are joint test.

^a-2 log likelihood test of improvement in model fit over the model with only control variables. DF=1.

13 categories of Industry variables and 3 categories of Education variables are also included in the regression.

Information Systems - Systèmes d'Information

ASB 2010
Halifax, Nova Scotia

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ASSESSING KM CAPABILITIES IN TWO AFRICAN HEALTHCARE ORGANIZATIONS: CASE STUDY

Cette étude vise à mieux comprendre le processus de développement des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC) dans le contexte des organisations de santé. Ce processus s'inscrit dans le cadre de l'école d'apprentissage (Cyert & March, 1963 ; Nelson & Winter, 1982 ; Burgelman, 1988 ; Cohen & Levinthal, 1990) qui favorise un processus d'apprentissage organisationnel et d'accumulation des connaissances pouvant s'étaler dans le temps et en plusieurs niveaux de maturité. Ainsi, à l'aide du modèle de maturité des COSGC qui présente cinq niveaux de maturité (Booto Ekionea, 2008), cette étude présente un diagnostic des COSGC de deux centres hospitaliers de l'Afrique subsaharienne. Enfin, soulignons que les conclusions de cette étude ne constituent pas une recherche quantitative, mais bien une étude qualitative qui vise la compréhension du phénomène de développement des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC), dans un contexte particulier, à l'aide de l'étude de cas.

Introduction

La plupart de gestionnaires et de décideurs ont pris conscience du rôle crucial que pourrait jouer une bonne gestion des connaissances au sein de leur organisation. Car, ils sont bombardés chaque jour avec les informations sous forme de courriels, messages vocaux,

télécopies, rapports, mémos (etc.) de façon répétitive : ils sont débordés et trouvent en la gestion des connaissances la solution à leur goulot d'étranglement (Sharma et al, 2005). En effet, les professionnels passent la majorité de leur temps à chercher les informations dont ils ont besoin en allant les chercher sur le Web, en envoyant des courriels, en appelant au téléphone, en cherchant dans des rapports sur ordinateur ou sur papier (Sharma et al, 2005). Le constat est encore sévère au niveau des organisations de santé qui sont préoccupées par une bonne gestion des connaissances afin d'organiser et de faciliter la conservation, la circulation et l'utilisation des données, des informations et des connaissances médicales et de l'administration de la santé. D'ailleurs quelques études (Pauker et al, 1976; Smith, 1996) prouvent que les médecins utilisent à peu près deux millions de pièces d'information pour gérer leurs patients. Aussi, un tiers de temps du médecin est consacré à l'enregistrement et à la combinaison d'informations. Enfin, un tiers des coûts des fournisseurs des services de santé est consacré aux communications personnelles et professionnelles (Hersch et Lunin, 1995).

Par ailleurs, il est aujourd'hui difficile et même impensable, pour un professionnel de santé, d'exercer correctement son métier sans faire recours régulièrement à une mise à niveau ou à un échange des connaissances à l'interne et à l'externe (Desouza, 2005). En effet, la plupart des organisations de santé ne peuvent pas se servir adéquatement des connaissances de leurs employés à cause d'une mauvaise documentation, du manque de partage des connaissances entre employés, du taux de rotation du personnel, du manque de temps et d'intérêt des employés, etc. (Chase, 1998).

Ainsi, la capture des connaissances dans les organisations cliniques et hospitalières est une des tâches principales. Car, jusqu'à présent, en Amérique du Nord, en Europe comme dans les pays en voie de développement, la plupart d'informations et de connaissances sur les patients sont encore stockées sous forme de rapports sur papiers et sur des cartes. Bien plus, les informations et les connaissances sont dispersées à travers l'hôpital sans ordre ni structure (Desouza, 2005). Les informations et les connaissances sont aussi stockées dans différents formats qui ne permettent pas leur traitement et rendent difficile leur stockage sur des supports accessibles facilement. C'est ainsi qu'il est de plus en plus évident que le développement des capacités organisationnelles de capture, de transfert et de dissémination des données, des informations et des connaissances médicales, à travers l'organisation, est un des facteurs critiques dans presque tous les domaines d'affaires (Earl, 2001). Or, le développement des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC) passe par le développement et l'utilisation des modèles de maturité spécifiques (Siemens, 2001; Klimko, 2001; Kaner et Karni, 2004; Harigopal et Satyadas, 2001; Dayan et Stephen, 2006; Berztiss, 2002; Johnson et Brodman, 2002).

Ainsi, l'évaluation des capacités de capture, de transfert et de dissémination des données, des informations et des connaissances médicales d'une organisation de santé à l'aide d'un modèle de maturité est indispensable. En effet, plusieurs arguments militent en faveur de la gestion des connaissances au sein des organisations de santé dont notamment (Wahle et Groothuis, 2005) : 1- les hôpitaux ou toute autre organisation de santé sont les centres d'échange intensif d'informations et de connaissances; 2- il y a une demande accrue sur l'optimisation du soutien aux procédures médicales de base; 3- il y a besoin d'efficacité et d'efficacités des soins de santé; 4- les patients sont de plus en plus exigeants en ce qui concerne la qualité des soins de santé et des informations médicales sur leur maladie; 5- il y a besoin d'échange de données, d'informations et de connaissances entre les différents intervenants (professionnels et institutions); 6- le nombre de plus en plus important des disciplines (professionnels) autonomes qui interviennent autour du malade et qui ont besoin de conserver d'échanger et d'utiliser les connaissances de la spécialité pour améliorer leur niveau de connaissance et leur

efficacité opérationnelle; 7- certaines connaissances uniques qui naissent lors des interventions des professionnels ont besoin d'être capturées, sécurisées, partagées et utilisées. Ainsi, au cours de la présente étude, les COSGC des deux organisations de santé sont évaluées à l'aide du modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances (MMCOSGC) qui est un modèle intégré à cinq niveaux et comprenant trois dimensions : infrastructures de gestion des connaissances, processus de gestion des connaissances et compétences en gestion des connaissances (Booto Ekionea, 2008; Booto Ekionea & Abou-Zeid, 2005). Car, l'application de ce modèle dans le cadre de la présente étude permettra de poser un diagnostic des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC) des deux hôpitaux étudiés. Cette évaluation permet donc d'identifier le niveau de maturité, pour chaque dimension et sous-dimension, de chaque organisation étudiée dans le but d'envisager l'amélioration ou le développement des COSGC. En effet, les organisations ont besoin de voies sûres pouvant les soutenir dans la capture, la conservation, la transformation, le partage et l'application des connaissances sur les expériences passées et les leçons tirées afin de répondre aux besoins actuels et futurs (Rubenstein et Geisler, 2005, p.45).

Ainsi, outre l'introduction et la conclusion, le présent article est subdivisé en quatre sections : 1- de la revue de la littérature où sont définis les concepts de la donnée, de l'information et de la connaissance dans le contexte clinique et hospitalier ainsi que les concepts des COSGC et de modèle de maturité des COSGC; 2- du design de l'étude de cas où nous présentons la méthodologie utilisée inspirée de Yin (1994); 3- du déroulement et des résultats de l'étude de cas où sont présentées les évaluations des COSGC faites dans chaque organisation étudiée et les résultats individuels et consolidés où une analyse inter-cas est présentée : il s'est agi d'une analyse transversale par la méthode déductive qui met l'accent sur l'importance de valider les données par rapport au cadre théorique (le MMCOSGC); 4- des discussions et des perspectives sur les concepts des COSGC où sont présentés les diagnostics, les causes, les défis à relever par les organisations de santé et les perspectives de recherche au niveau académique.

Revue de la littérature

Sur le plan théorique, la présente étude se repose sur six postulats :

Postulat 1 : la connaissance est une des ressources organisationnelles stratégiques et susceptibles d'accorder l'avantage concurrentiel et d'aider à l'atteinte de la performance d'affaires. Ainsi, les connaissances médicales peuvent être considérées comme étant un ensemble d'informations nominatives versus non nominatives à des informations administratives (le « dossier administratif »), à des informations médicales (le « dossier médical », enregistrement de tous les événements ayant trait au patient et le « dossier infirmier », permettant de piloter les traitements), à des résultats d'études épidémiologiques, à des connaissances sur les conduites à tenir (les protocoles thérapeutiques, les guides de bonnes pratiques), à des thésaurus ainsi qu'à des informations à organiser selon les buts que se donne l'établissement de santé (Beveren, 2003).

Postulat 2 : la gestion des connaissances organisationnelles est une tâche difficile qui requiert le développement des capacités organisationnelles spécifiques sans lesquelles l'atteinte de l'avantage concurrentiel et de la performance d'affaire, par elle, est impossible (Peppard et Ward, 2004; St-Amant et Renard, 2004). En effet, la gestion des connaissances est très importante dans le secteur particulier des organisations de santé à cause de flux importants de données, d'informations et de connaissances qui y circulent. Car, une organisation de santé est

un ensemble de professionnels spécialistes qui contribuent à prodiguer les soins de santé aux patients (Beveren, 2003). Ainsi, ce type particulier d'organisation devrait développer les capacités de créer, de diffuser ou de partager les connaissances à travers l'organisation afin d'améliorer les soins à prodiguer aux patients (Beveren, 2003).

Postulat 3 : le développement des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC) se définit autour des trois dimensions : infrastructures de la gestion des connaissances, processus de la gestion des connaissances et compétences en gestion des connaissances (Abou-Zeid, 2003 ; Ahn et Chang, 2005).

Postulat 4 : l'observation des efforts (ou initiatives) de développement ou d'amélioration des COSGC s'inspire de l'école d'apprentissage et ne peut se faire qu'à travers un modèle de maturité spécifique (Préfontaine, 1994; Peppart et Ward, 2004; Luftman et al, 2004; Dekleva et Drehmer, 2001; Venkatraman, 1994; St-Amant et Renard, 2004). En effet, le modèle de maturité évalue l'atteinte d'un ou de plusieurs objectifs généraux sous forme d'une échelle de 0 à 5 dont 0 : inexistant, 1 : existant mais non organisé (initialisé au cas par cas), 2 : décrit (reproductible mais intuitif), 3 : défini (avec documentation), 4 : surveillé et mesuré, 5 : optimisé. La présente thèse considère une échelle de 1 à 5 niveaux de maturité pour chaque dimension et caractéristique des COSGC.

Postulat 5 : le modèle de maturité exprime les niveaux de performance qu'une organisation peut atteindre en fonction du degré de développement des COSGC.

Postulat 6 : la validation de ce modèle dans un contexte particulier des organisations de santé étudiées aidera à comprendre la place d'un modèle de maturité, comme outil de diagnostic des COSGC, dans le processus de développement des COSGC au sein d'une organisation.

Importance de bien gérer les données, les informations et les connaissances médicales

L'[information](#) correspond à l'interprétation, traitée par les ordinateurs ou par l'humain à l'aide de son cerveau, de [données](#) brutes (Spiegler, 2000). Par conséquent, la connaissance est une combinaison d'[informations](#) (ou [observations](#)), de leur [interprétation](#) par les hommes qui puisent dans leur [expérience](#) personnelle et/ou collective, et de [modèles](#), de [théories](#) ou [croyances](#) qui donnent leur sens à ces informations (Prax, 2003). Le concept de connaissance fait donc appel aux questions de sens portées notamment par les notions telles que le [langage](#), la [sémantique](#), les [croyances](#), la [conscience](#). En effet, on comprend que l'information, qui est factuelle, peut être facilement capitalisée et transportée dans des documents ou bases de données sous forme explicite, alors que la [connaissance](#), stricto sensu, est un élément plus [humain](#), [subjectif](#), et souvent [tacite](#). Ainsi, Nonaka (1994) distingue deux types de connaissances : tacites et explicites.

Les [connaissances tacites](#) sont les connaissances qui appartiennent au monde des objets mentaux, des [représentations mentales](#). Elles regroupent les compétences innées ou acquises, le savoir-faire et l'[expérience](#). Elles sont généralement difficiles à « formaliser » par opposition aux connaissances explicites (Nonaka, 1994). Les [connaissances explicites](#), contrairement aux connaissances tacites, sont les connaissances clairement articulées au niveau d'un document écrit, ou d'un système [informatique](#). Ces connaissances sont transférables physiquement, car elles apparaissent sous une forme tangible (dossier papier ou électronique) (Nonaka, 1994). Ainsi, au sein des [organisations](#), la connaissance correspond au capital d'[expertise](#) que détiennent les hommes dans les différents domaines qui constituent le cœur de métier de l'entreprise. Certaines autres connaissances sont disséminées à travers l'organisation dans de supports papiers et électroniques. Ces connaissances doivent être

gérées afin d'améliorer l'efficacité globale et la compétitivité des entreprises (Wernerfelt, 1984; Barney, 1991).

Ainsi, la gestion des connaissances (en anglais *Knowledge Management*) - ou ingénierie des connaissances - est comprise dans cette thèse comme étant l'ensemble des méthodes et des techniques permettant de percevoir, d'identifier, d'analyser, d'organiser, de mémoriser, et de partager des connaissances entre les membres des organisations, en particulier les savoirs créés par l'entreprise elle-même ou acquis de l'extérieur. D'ailleurs, Gartner Groupe (1998), définit la gestion des connaissances comme une approche intégrée pour identifier, capturer, partager et évaluer les informations-clefs de l'entreprise.

Cependant, la gestion des connaissances diffère d'une organisation à une autre, d'une industrie à une autre et d'une réalité contextuelle à une autre. D'où la nécessité de *contextualiser* les approches de gestion des connaissances. En effet, le *contextualisme* en philosophie de la connaissance est la thèse selon laquelle les attributions de connaissance peuvent changer de valeur de vérité d'un contexte de conversation à l'autre. Le *contextualiste* compare le mot « savoir » à d'autres mots *sensibles au contexte*, c'est-à-dire qui changent de valeur d'un contexte de conversation à l'autre (Lewis, 1995).

Ainsi, dans le secteur particulier de la santé en général, clinique et hospitalier en particulier, la gestion des connaissances est très importante à cause de flux importants de données, d'informations et de connaissances qui y circulent. Car, une organisation de santé est un ensemble de professionnels spécialistes qui contribuent à prodiguer les soins de santé aux patients (Beveren, 2003). C'est pour cette raison que ce type d'organisation devrait développer les capacités de créer, de diffuser ou de partager les connaissances à travers l'organisation afin d'améliorer les soins à prodiguer aux patients (Beveren, 2003). Car, les organisations de santé qui gèrent et partagent leurs connaissances pourraient effectivement obtenir la réduction des temps de traitement, la réduction des coûts, le retour à l'investissement, un niveau élevé de satisfaction et une bonne formation du personnel médical et paramédical (Sharma et al, 2005 et Antrobus, 1997). En effet, la médecine est confrontée à des exigences de qualité et d'optimalité de soins qui obligent à gérer les connaissances médicales. Les professionnels de santé doivent être en mesure de partager et appliquer des connaissances communes et donc collectivement validées, en particulier les protocoles de soins se développant dans de nombreuses disciplines sous la forme de guides de bonne pratique, pour la partie de la médecine la plus *protocolisée*. Ils doivent aussi acquérir des savoirs et de savoir-faire qui leur permettront d'utiliser leur relation clinique avec le patient pour « instancier », de la meilleure façon qu'il soit, des connaissances générales au contexte, toujours particulier, du patient.

De la même façon que les connaissances doivent être partagées, les responsabilités et les décisions sur les soins à prodiguer aux malades devraient être facilitées et partagées au sein d'une organisation de santé (Eisenberg, 2002). Pour ce faire, il y a lieu que ces établissements développent les moyens de rassembler le savoir et le savoir-faire médical, les protocoles, les guides de bonne pratique, les références bibliographiques de la médecine factuelle sur des supports facilement accessibles, faciliter leur transmission en temps réel à l'intérieur de l'établissement, etc. Ainsi, les connaissances médicales peuvent être considérées comme étant un ensemble d'informations nominatives versus non nominatives à des informations administratives (le « dossier administratif »), à des informations médicales (le « dossier médical », enregistrement de tous les événements ayant trait au patient et le « dossier infirmier », permettant de piloter les traitements), à des résultats d'études épidémiologiques, à des connaissances sur les conduites à tenir (les protocoles thérapeutiques, les guides de bonne pratique), à des thésaurus ainsi qu'à des informations à organiser selon les buts que se donne l'établissement de santé.

En effet, en ce qui concerne les organisations de santé, celles-ci ont besoin de capturer et d'analyser des données cliniques ainsi que celles du marché afin de les visualiser et de les organiser en informations utiles pour la prise de décision (Pavia, 2001). Les organisations de santé devraient mettre des informations et des connaissances pertinentes à la disposition des consommateurs, des patients, des cliniciens, des dirigeants, des gestionnaires et des autres membres du personnel (Beveren, 2003). Cette façon de faire aiderait à la survie et au maintien compétitif des organisations de santé qui évoluent souvent dans de contextes arides et complexes. Ainsi, les données, les informations et les connaissances dont peuvent avoir besoin les organisations de santé pourraient être regroupées dans les trois catégories que présente le tableau 1 (Wahle & Groothuis, 2005).

Tableau 1: Processus et catégorie de données, informations et connaissances dont une organisation de santé a besoin

Processus	Catégorie
◆ Processus primaires	<ul style="list-style-type: none"> ◆ Registre central ◆ Consultations externes ◆ Admission des patients ◆ Soins et administration des médicaments (nursing) ◆ Traitement à domicile ◆ Traitement clinique
◆ Processus de soutien aux soins de santé	<ul style="list-style-type: none"> ◆ Médication ◆ Procédure de diagnostic ◆ Autres soutiens aux soins de santé
◆ Processus de soutien en général	<ul style="list-style-type: none"> ◆ Apport des gestionnaires ◆ Finances ◆ Apports de l'information ◆ La gestion ◆ Les facilités ◆ La formation

En effet, la gestion des connaissances dans le secteur de la santé implique : 1- des données informatisées sur les patients, 2- la télémédecine, 3- une meilleure utilisation et une bonne gestion des équipements (Rubenstein & Geisler, 2005).

Par ailleurs, les applications de la gestion des connaissances diffèrent d'un domaine à l'autre comme le présente le tableau 2.

Tableau 2 : Les applications de la gestion des connaissances (d'après Edge, 2005, p.40)

Application de la gestion des connaissances	Auteurs
◆ Différentes conceptions des connaissances organisationnelles et personnelles.	<ul style="list-style-type: none"> ◆ Brown & Dugid (2000) ◆ Hansen et al, (1999)

◆ Les stratégies de gestion des connaissances	◆ Davenport & Prusak (1998) ◆ Nonaka (1991) ◆ Nonaka et al (2001)
◆ Les études de cas sur les impacts de la gestion des connaissances sur le succès organisationnel	◆ Kreiner (2002) ◆ Nonaka & Takeuchi (1995, 1997) ◆ Smith (2001) ◆ Weick & Roberts (1996)
◆ Les études sur les applications de la gestion des connaissances dans le secteur public	◆ Edge (2005) ◆ Riège et Lindsay (2006) ◆ Mercer et al (2005) ◆ Ovalle et al (2004)
◆ Les études sur les applications de la gestion des connaissances dans le contexte clinique et hospitalier	◆ Kohli & Kettinges (2004) ◆ Beveren (2003)

Cet intérêt croissant dans la littérature pour les applications de la gestion des connaissances laisse entrevoir les bénéfices que peuvent aller chercher les organisations du secteur de la santé (du public comme du privé), tels que présentés notamment au tableau 3.

Tableau 3 : Bénéfices des applications de la gestion des connaissances dans le secteur public

Bénéfices	Auteurs
◆ Améliorer la qualité et l'efficacité organisationnelle	◆ McAdam & Reid (2001) ◆ Kohli & Kettinger (2004) ◆ Beveren (2003)
◆ Réduire les coûts	◆ McAdam & Reid (2001) ◆ Kohli & Kettinger (2004) ◆ Beveren (2003)
◆ Diminuer des fragmentations inter-agences	◆ Ardichvilli et al (2003) ◆ Beveren (2003)
◆ Bien gérer l'expertise organisationnelle	◆ Edge (2005)
◆ Gérer les connaissances dans le secteur public pour améliorer la performance	◆ Edge (2005)

Par ailleurs, malgré le bénéfice que l'on peut anticiper sur les applications de la gestion des connaissances dans les deux secteurs (public et privé), quelques obstacles s'érigent encore sur le chemin des initiatives en gestion des connaissances dans ces secteurs comme repris, notamment, au tableau 4.

Tableau 4 : Obstacles aux initiatives de gestion des connaissances dans le secteur public

Obstacles	Auteurs
◆ L'isolement ou l'indépendance fonctionnelle et professionnelle	◆ Murray (2001)

de certaines organisations du secteur public	◆ Edge (2005)
◆ Les employés désirent maintenir et protéger leurs connaissances individuelles à cause des intérêts personnels ou associatifs	◆ Murray (2001) ◆ Beveren (2003)
◆ La perpétuelle réduction des allocations des ressources	◆ McAdam & Reid (2001)
◆ Les limites technologiques dans les organisations et dans tout le système (ex. incompatibilité des systèmes d'exploitation)	◆ Edge (2005)
◆ Le manque de temps des professionnels en dehors des heures et du contexte de pratique de leur métier	◆ Edge (2005) ◆ Schneider (1993)
◆ Les contraintes budgétaires	◆ Edge (2005)

À la lumière de ce qui précède, il est aisé de comprendre que les initiatives en gestion des connaissances apportent de la valeur. Cependant, des défis majeurs restent à relever en termes de développement des capacités spécifiques.

Capacités organisationnelles spécifiques à la gestion des connaissances

En effet, les organisations de santé ont besoin de capturer, préserver, transformer, stocker et appliquer les connaissances sur les expériences et les leçons du passé afin de répondre à leurs besoins actuels et futurs (Rubenstein & Geisler, 2005). Pour y parvenir, ces organisations se doivent de développer les capacités organisationnelles spécifiques à la gestion des connaissances. C'est ce qui justifierait la pertinence de l'application d'un modèle de maturité spécifique. Ce modèle intégré à trois dimensions aidera à faire un diagnostic des capacités organisationnelles spécifiques à la gestion des connaissances dont l'organisation a besoin pour mieux exploiter ses connaissances organisationnelles. Pour ce faire, la présente recherche se construit en considérant que : 1- la connaissance est une des ressources organisationnelles stratégiques susceptibles d'accorder l'avantage concurrentiel et d'aider à atteindre la performance d'affaires ; 2- la gestion des connaissances organisationnelles est une tâche difficile qui requiert le développement des capacités organisationnelles spécifiques sans lesquelles atteindre l'avantage concurrentiel et la performance d'affaires est impossible (Peppard et Ward, 2004; St-Amant et Renard, 2004) ; 3- le développement des capacités organisationnelles spécifiques à la gestion des connaissances se définit autour des trois dimensions : infrastructures de la gestion des connaissances, processus de la gestion des connaissances et compétences en gestion des connaissances (Abou-Zeid, 2003 ; Chang & Ahn, 2005).

Infrastructures de gestion des connaissances comme capacités organisationnelles spécifiques

Les infrastructures de gestion des connaissances, dans le cadre de la présente étude, incluent les technologies de l'information (infrastructures technologiques) supportant la gestion des connaissances, les structures organisationnelles et les systèmes organisationnels de récompenses et d'incitation et, enfin, la culture organisationnelle en gestion des connaissances (Booto & Abou-Zeid, 2005). Les infrastructures technologiques incluent les technologies facilitant et soutenant la gestion des connaissances, telles que l'intelligence d'affaires, l'apprentissage collaboratif et distribué, la gestion des connaissances pour la découverte, la gestion des connaissances pour le traçage, etc (Goh, 2005; Alavi et Leidner, 2001). En effet,

« les technologies de gestion des connaissances incluent celles employées pour créer, stocker, rechercher, distribuer et analyser les informations structurées et non structurées » (Herschel & Jones, 2005, p.45). C'est dans ce contexte que les technologies (cliniques et administratives) sont cruciales dans la définition de la compétitivité des organisations de santé (Sharma et al, 2005). Car, comme présenté au tableau 5, les outils et les technologies spécifiques peuvent aider une organisation de santé à développer ses capacités d'acquisition, de stockage, de partage et d'intériorisation des connaissances par les professionnels et par les autres intervenants (Oxbrow & Abell, 1998; Sharma et al, 2005).

Tableau 5 : Outils et technologies de gestion des connaissances (d'après Sharma et al, 2005)

No	Outils/Technologies	Définition et utilisation	Auteurs
1	Carte des connaissances (<i>knowledge mapping</i>)	Crée les modèles des connaissances de haut niveau sous forme de graphiques. L'utilisation des cartes des connaissances permet une vision globale des connaissances disponibles et manquantes dans les compétences clés du domaine d'affaires et facilite une bonne prise de décision.	Sharma et al. (2005); Heathfield & Louw (1999)
2	Exemple de cartes des connaissances des processus (<i>process based knowledge map</i>)	Est essentiellement une carte ou un diagramme qui visualise les connaissances dans le contexte du processus d'affaires et en indique les sources. Ainsi, les connaissances tacites et explicites du processus d'affaires ainsi que leurs différentes sources sont représentées sur une carte.	Sharma et al. (2005)
3	Agents intelligents (<i>intelligent agents</i>)	Le but des agents intelligents est de permettre les recherches à l'utilisateur final. C'est en fait une base de données sous forme bibliographique ou un petit réseau distribué hétérogène de documents hypertextes. L'agent intelligent utilise la combinaison des techniques de profilage, des outils de recherche et de reconnaissance des algorithmes afin de faire parvenir l'information aux personnes qui en ont besoin.	Sharma et al. (2005); Strawser (2000)
4	Fureteurs Web (<i>Web browsers</i>)	Le fureteur Web est un moyen facile d'accéder aux connaissances, grâce à son accessibilité et à son coût bas (ex. <i>Microsoft Explorer</i>). Sa rapidité d'accès aux connaissances lui procure un grand avantage.	Sharma et al. (2005); Strawser (2000)
5	Les applications de gestion des connaissances (<i>knowledge management applications</i>)	Une application de gestion des connaissances est un moyen par lequel les employés peuvent partager leurs connaissances avec ceux qui en ont besoin. En guise d'utilisation, certaines firmes de consultation offrent un ensemble de trucs et astuces.	Sharma et al. (2005); Strawser (2000)

6	Les applications <i>Workflow</i>	C'est l'envoi, avec trace, de documents à une personne ou à un groupe de personnes avec possibilité de suivi du cycle de vie du document par les personnes concernées. Par exemple : <i>Lotus Notes</i> ou <i>Outlook 2000</i> et plus, <i>Office 2000</i> et plus, <i>Télémedecine</i> , etc.	Sharma et al. (2005); Strawser (2000)
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En effet, l'infrastructure technologique typique d'une organisation de santé peut être subdivisée en un ensemble de systèmes qui soutiennent (Gargeya & Sorrel, 2005, p.50) : 1- les soins aux patients; 2- les processus administratifs et réglementaires; 3- la prise de décision et l'amélioration de la qualité. Toutes ces catégories sont, technologiquement parlant, soutenues par : 1- une bonne architecture de réseau; 2- les composants physiques (*hardware components*); 3- l'architecture des données et de la connectivité des logiciels. À ces fins, une bonne architecture technologique pour la gestion des connaissances devrait (Gargeya & Sorrel, 2005, p.58) : 1- être omniprésente, fiable, *scalable*, maniable, et sécuritaire; 2- être capable de soutenir la transmission des données sous forme de voie et multimédia, incluant les applications comme la télémedecine et la téléconférence; 3- utiliser les protocoles et les topologies standard de l'industrie, 4- être capable de soutenir diverses exigences des infrastructures en réseau associées aux soins des patients, à la recherche médicale, à la formation et à l'administration; 5- être moins coûteuse tant à l'implantation qu'à l'opérationnalisation. Car, les technologies de l'information peuvent améliorer la vitesse d'intégration et d'application des connaissances en codifiant automatiquement les routines organisationnelles. Ainsi, les systèmes automatiques comme le *Workflow* constituent des exemples d'application des technologies de l'information qui peuvent aider à réduire le besoin de communication et de coordination et permettent une utilisation plus efficace des routines organisationnelles comme les documents, les informations, les règles et les activités (Alavi & Leidner, 2001). Par ailleurs, les systèmes experts basés sur les règles sont d'autres moyens de capture et de bon renforcement des procédures organisationnelles spécifiques. Par ailleurs, sur le plan de la sécurité physique et logique (Gargeya & Sorrel, 2005, p.58), une bonne architecture technologique pour la gestion des connaissances devrait : 1- utiliser des fibres optiques dans le câblage et installer tous les équipements électroniques dans des locaux sécurisés; l'utilisation d'autres moyens de protection, comme les murs coupe-feu, serait aussi souhaitable; 2- utiliser les serveurs d'authentification, de services de sécurité, d'accès à distance, de gestion des courriels (*e-mail Gateway*). Car, certaines règles de sécurité doivent être respectées (Gargeya & Sorrel, 2005, p.59) : 1- procédures administratives; 2- sécurité physique; 3- gestion de configuration de la sécurité; 4- services techniques de sécurité; 5- mécanismes techniques de sécurité; 6- signature électronique.

Quant aux structures organisationnelles spécifiques pour une bonne gestion des connaissances, Beveren (2003), constate que certaines structures organisationnelles des organisations de santé sont de véritables obstacles à une bonne gestion des connaissances : 1- les structures départementales au sein de l'organisation sont basées sur les groupes professionnels et ne sont pas orientées vers la tâche; 2- les professionnels œuvrant dans des structures existantes travaillent en isolement et, par conséquent, il y a manque d'interdisciplinarité; 3- la domination, culturellement enracinée, de la structure hiérarchique, avec plusieurs niveaux de gestion et où la circulation de l'information est très rigide, caractérise la plupart des organisations du secteur public. Or, comme résumé au tableau 6, « les théories en gestion des connaissances se basent sur les infrastructures technologiques qui organisent les connaissances individuelles et collectives ainsi que sur les structures

organisationnelles qui procurent les conditions sociales qui encouragent les employés à partager leurs connaissances et leurs expertises. » (Edge, 2005, p.45).

Tableau 6 : Les technologies de soutien au processus de gestion des connaissances (d'après Gargeya & Sorrel, 2005, pp. 52-54)

Lieux d'entrée de données	Gestion des connaissances pour la communication des données sur les patients	Gestion des connaissances pour le soutien au diagnostic et pour les sciences thérapeutiques	Gestion des connaissances dans le processus d'admission des patients
<ul style="list-style-type: none"> ◆ Système s d'admission ou d'enregistrement des patients dans un hôpital. 	<ul style="list-style-type: none"> ◆ Données démographiques du patient. ◆ Particularités sur les assurances médicales. ◆ Localisation du patient (numéro de département, chambre, lit, etc.). ◆ Informations sur les motifs d'admission à l'hôpital du patient. ◆ etc. 	<ul style="list-style-type: none"> ◆ Informations sur les pathologies cliniques (tests de laboratoire). ◆ Informations sur les pathologies anatomiques (échantillon des tissus). ◆ Informations sur la radiologie. ◆ Informations sur les procédures de diagnostics cardiovasculaires. ◆ Informations sur la médecine nucléaire. 	<ul style="list-style-type: none"> ◆ Intégration entre le système d'admission et celui des ordonnances médicales. ◆ Intégration effective des données, des informations et des connaissances pour l'efficacité et l'efficience des processus au niveau organisationnel et inter-organisationnel. ◆ Saisie des données, des informations et des connaissances là où elles naissent et contrôle de leur diffusion auprès de ceux qui en ont besoin.

<p>◆ Passage de la prescription papier à la prescription électronique : l'utilisation de la carte électronique du patient est recommandée afin de maximiser les temps d'intervention et l'efficacité des soins apportés aux patients.</p>	<p>◆ Technologies de l'information pour la facilitation à la communication des données du patient.</p>	<p>◆ Passage de la prescription papier à la prescription électronique.</p>	<p>◆ Technologies de l'information pour le soutien au processus de création, de conservation, de partage et d'utilisation des données, des informations et des connaissances du patient.</p>
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Processus de gestion des connaissances comme capacité organisationnelle spécifique

La deuxième dimension des capacités organisationnelles spécifiques à la gestion des connaissances concerne les processus qui changent l'état organisationnel de gestion des connaissances et qui peuvent être classifiés en trois catégories principales, c'est-à-dire, la génération des connaissances, leur mobilisation et leur application. Le processus de génération des connaissances inclut toutes les activités par lesquelles de nouvelles connaissances sont produites au sein de l'organisation. La mobilisation des connaissances signifie une meilleure visibilité des connaissances grâce au partage ou au transfert d'un porteur (le fournisseur, le propriétaire ou la source de la connaissance) vers un autre (le chercheur ou la cible de la connaissance) dans l'espace ou le temps. L'autre dimension associée aux processus de l'application des connaissances est le processus de l'évaluation des connaissances, qui inclut toutes les activités qui visent à justifier et à mesurer sa valeur marchande. En effet, « la gestion des connaissances est un ensemble dynamique et continu des processus et des pratiques enfiévrés auprès des individus, des groupes et des structures physiques » (Alavi et Leidner, 2001, p.123). Car en tout temps et en tout lieu d'une organisation donnée, poursuivent ces auteurs, les individus et les groupes doivent être engagés dans différents aspects et différents processus de gestion des connaissances. Ainsi, la gestion de ces dernières n'est pas un phénomène discret, indépendant et monolithique. En effet, les processus de gestion des connaissances comprennent (Alavi & Leidner, 2001) : 1- la création des connaissances; 2- le stockage des connaissances; 3- le transfert des connaissances; 3- l'application des connaissances. C'est d'ailleurs ce que soutient Desouza (2005), qui résume les processus de gestion des connaissances en termes de création, dissémination et utilisation des connaissances au sein d'une organisation. Cela parce que la création des connaissances réfère à l'identification de leurs sources internes et externes et à leurs procédures d'extraction pour servir d'« inputs » au processus de gestion des connaissances. Par ailleurs, la capture et le

stockage des connaissances sont l'ensemble de procédures et de procédés de leur codification dans un support de stockage lisible par une machine. La codification des connaissances explicites, quant à elle, fait appel au transfert des connaissances explicites codées sur divers formats dans un format de document électronique (Desouza, 2005). Quant à la codification des connaissances tacites, elle consiste à les convertir en connaissances explicites sur un support électronique (Desouza, 2005). Ainsi, « l'utilisation d'un répertoire centralisé facilite la conservation des connaissances, élimine la duplication d'efforts au niveau départemental ou au niveau organisationnel et réduit les coûts » (Desouza, 2005, 16). Car le répertoire des connaissances permet aux membres d'une organisation de s'en servir selon leurs besoins de services. En effet, une fois stockées, les informations et les connaissances d'une organisation doivent être rendues disponibles pour faciliter l'accès aux autres membres de l'organisation (Desouza, 2005). Toutefois, seules les personnes autorisées seront habilitées à manipuler les informations et les connaissances concernées.

Quant à l'exploitation et à l'application des connaissances, Alavi et Leidner (2001, p.122) soutiennent que l'aspect « important de la théorie de création des connaissances au sein d'une organisation est la source de l'avantage concurrentiel qui réside tant dans l'application des connaissances que sur la connaissance elle-même ». Car les connaissances ne pourront jamais favoriser l'innovation si on ne les applique pas (Desouza, 2005). Par ailleurs, une bonne gestion des processus de gestion des connaissances requiert de capacités organisationnelles spécifiques. Dans ce cadre, Grant (1996) identifie trois mécanismes primaires pour l'intégration des connaissances dans la création des capacités organisationnelles : les directives organisationnelles, les routines organisationnelles et le contenu des tâches des équipes. Les directives organisationnelles se réfèrent à l'ensemble des règles, des standards, des procédures et des instructions développées à travers la conversion des connaissances tacites des spécialistes en connaissances explicites et en connaissances intégrées pour une communication efficiente (Alavi & Leidner, 2001; Demsets, 1991). Quant aux routines organisationnelles, elles « se réfèrent au développement de la performance des tâches et des modèles de coordination, au protocoles d'interaction et aux spécifications des processus qui permettent aux individus d'appliquer et d'intégrer leurs connaissances spécialisées sans avoir le besoin d'articuler et de communiquer ce qu'ils savent aux autres » (Alavi & Leidner, 2001, p.122).

« Le troisième mécanisme d'intégration est la création de contenu des tâches des équipes : dans la situation où l'incertitude et la complexité des tâches à exécuter exigent les directives et les routines organisationnelles spécifiques, les équipes des gens avec les connaissances pré-requises et spécialisées sont formées pour la résolution de problèmes » (Alavi & Leidner, 2001, p.122). En effet, « l'institutionnalisation des meilleurs pratiques par leur stockage via des technologies de l'information devrait faciliter une bonne manipulation des routines et des situations prédictibles durant les changements environnementaux stables ou incréments » (Alavi & Leidner, 2001, p.122). Car si le changement est radical et discontinu, le besoin persiste pour le renouvellement continu des prémices de base en ayant recours aux pratiques archivées dans des répertoires des connaissances (Malhotra, 1999). Il reste cependant à « savoir quelles règles et routines appliquer à un problème spécifique : ce qui suppose que l'organisation a appris et codifié un nombre important de règles et de routines, ainsi choisir lesquelles activées pour la résolution d'un problème spécifique est toute la problématique d'application des connaissances » (Alavi & Leidner, 2001, p.122). Pour ce faire, le partage des connaissances sur les explications et les compréhensions de la nature et des besoins d'une situation particulière favorise une bonne utilisation des règles et des routines.

L'application des connaissances constitue donc un défi. Ainsi, les technologies de l'information peuvent avoir une influence positive. Elles peuvent contribuer à l'intégration

des connaissances ainsi qu'à leur application en facilitant la capture, la mise à jour et l'accessibilité aux directives organisationnelles. Les entités organisationnelles peuvent aussi améliorer rapidement leur apprentissage en accédant aux connaissances des autres entités qui ont rencontré des situations similaires. Bien plus, en améliorant la taille des réseaux internes d'individus et en augmentant le nombre de mémoires organisationnelles disponibles, les technologies de l'information permettent aux connaissances organisationnelles d'être appliquées dans le temps et dans l'espace (Alavi & Leidner, 2001).

Les compétences en gestion des connaissances comme capacité organisationnelle spécifique

La dernière dimension des capacités organisationnelles spécifiques à la gestion des connaissances est la capacité des compétences en gestion des connaissances. En effet, Les processus de gestion des connaissances présentent par leur nature même plusieurs facettes : technique, organisationnelle et humaine. Cette dimension se réfère à la nature des compétences exigées pour gérer et exécuter des processus de gestion des connaissances : 1 – la culture en gestion des connaissances; 2- la motivation à la gestion des connaissances; 3- les récompenses à la gestion des connaissances; 4 - les incitatifs à la gestion des connaissances.

En effet, la culture des organisations de santé est de combattre la culture de résistance et la culture de protection des connaissances individuelles (Svieby & Simons, 2002; Beveren, 2003). En effet, ces organisations ont les mêmes défis à relever que celles du secteur publique en ce qui concerne la culture collaborative dans le partage des connaissances individuelles que leurs vis-à-vis du secteur privé (Svieby & Simons, 2002) : « il y a de fortes résistances au changement tant au niveau individuel qu'à celui de la haute direction qui inhibent l'adaptation et la réaction aux exigences environnementales » (Beveren, 2003, p. 92). Or, l'organisation de santé devrait être une organisation où le patient est au centre des soins prodigués à l'hôpital. Pour cette raison, la coopération par les échanges de données, d'informations et de connaissances entre professionnels de santé œuvrant autour du malade et l'administration de l'hôpital s'avère capitale et suppose un changement de culture organisationnelle (Beveren, 2003). Car la culture actuelle d'autonomie et de « silos des connaissances » devrait être remplacée par la nouvelle culture qui requiert coopération, communication, formation et travail en équipe (Beveren, 2003; Brakensiek, 2002).

La motivation, quant à elle, est l'habileté à faciliter les processus continus du partage des connaissances et de renouvellement des connaissances, l'habileté à développer les ressources humaines et la culture organisationnelle qui facilite le partage des connaissances, et l'habileté à utiliser les technologies disponibles pour servir à la création, au partage et à la documentation des connaissances. Par ailleurs, Alavi et Leidner (2001) rappellent que les organisations ont besoin d'une rénovation culturelle profonde parce que les organisations récompensent traditionnellement leurs professionnels en fonction de leur performance individuelle et de leur savoir-faire, et non en fonction de leur capacité d'apprendre et de partager ce qu'ils savent. Aussi, Alavi et Leidner (2001, p.127) affirment que « les incitatifs sont très importants pour lever certaines barrières majeures au succès du stockage des connaissances ». Ces barrières incluent : 1- le manque de temps pour les employés de contribuer à la génération de leurs connaissances ; 2- la culture corporative, laquelle historiquement n'a jamais récompensé les employés qui contribuent à la création de leurs connaissances et qui les partagent avec les autres.

En effet, l'habileté à faciliter les processus continus du partage des connaissances et leur renouvellement, l'habileté à développer les ressources humaines et la culture organisationnelle qui facilite le partage des connaissances, et l'habileté à utiliser les

technologies disponibles pour la création, le partage et la documentation des connaissances sont quelques exemples des compétences exigées pour une bonne gestion des connaissances (Malhotra, 1997). Car, Sharma et al (2005) quant à eux, soutiennent qu'une organisation de santé envisageant le déploiement des systèmes de gestion des connaissances devrait tenir compte de la place des compétences que détiennent ses membres dans les processus d'affaires. Le concept des compétences comprend donc les connaissances factuelles, les habiletés, l'expérience, le jugement de valeur et les réseaux sociaux (Sharma et al, 2005). En effet, en théorie des ressources, ce ne sont pas les investissements en capitaux, l'acquisition de la technologie ou les compétences techniques qui font la différence, mais bien les compétences managériales d'une ressource (en l'occurrence, la connaissance), qui sont à la base du succès (Mata et al, 1995). Cela parce que les investissements en technologies de gestion des connaissances peuvent être facilement copiés par les concurrents et ne procurent pas d'avantages concurrentiels durables. Ce sont plutôt les compétences managériales spécifiques d'une organisation à niveler ses investissements pour créer des connaissances uniques et des habiletés spécifiques qui déterminent la supériorité stratégique d'une organisation. Ainsi, le leadership de la haute direction dans la vision des affaires, les habiletés managériales en gestion des processus des connaissances organisationnelles, la coordination des activités de gestion des connaissances, la politique de motivation du personnel dans la création et le partage des connaissances afin de favoriser le développement de la relation (connaissance du) client sont les éléments clés permettant à l'organisation d'améliorer considérablement sa performance et d'obtenir l'avantage concurrentiel durable (Bharadwaj, 2000).

Ainsi, les aspects culturels de la gestion des connaissances, les compétences des employés et l'attitude favorable au partage des connaissances sur les processus de soins aux patients sont vitaux pour n'importe quel programme de gestion des connaissances dans le secteur de la santé (Burca, 2000; Matheson, 1995; Sharma et al, 2005). Car, de ce qui précède, on peut comprendre que le développement des capacités organisationnelles spécifiques de gestion des connaissances est crucial si l'organisation entend tirer les avantages que procure une bonne gestion des connaissances. Or, les études récentes soutiennent que le développement des capacités organisationnelles spécifiques de gestion des connaissances est le mieux assuré par un modèle de maturité des capacités spécifiques (Siemens, 2001; Klimko, 2001; Kaner et Karni, 2004; Harigopal et Satyadas, 2001; Dayan et Stephen, 2006; Berztiss, 2002; Johnson et Brodman, 2002; Dekleva et Drehmer, 2001). La section suivante aborde donc le concept de modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances.

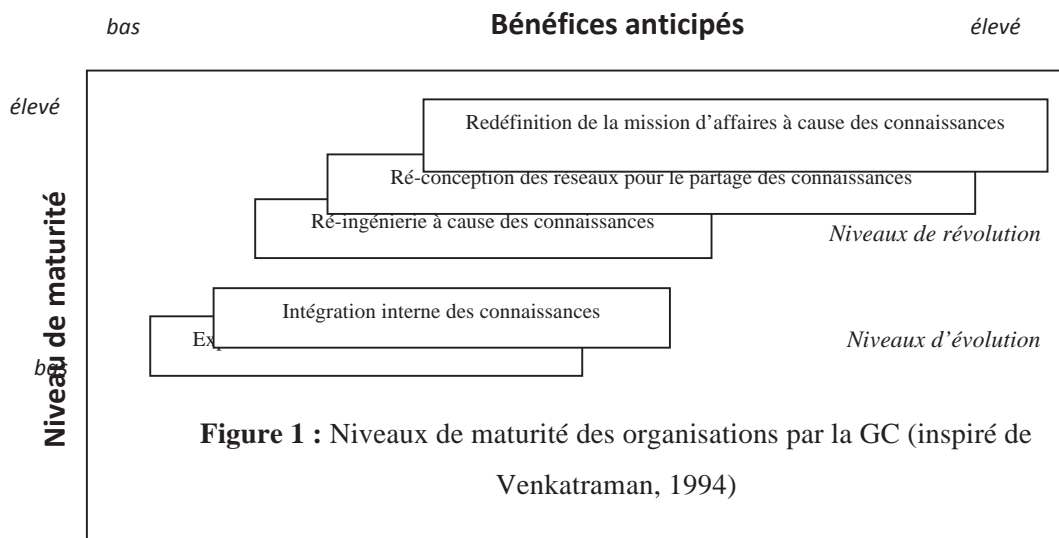
Les modèles de maturité en gestion des connaissances

Le concept de modèle de maturité, dans ce travail, s'inspire de l'école d'apprentissage en gestion qui promeut le développement des compétences organisationnelles par un processus d'apprentissage avec l'accumulation dans le temps et qui a pour but de mettre en forme les modèles de développement des compétences organisationnelles (Cyert & March, 1963; Nelson & Winter, 1982; Burgelman, 1988; Cohen & Levinthal, 1990 cités par Préfontaine, 1994). En effet, l'apprentissage organisationnel est la façon dont les entreprises enrichissent et organisent la connaissance et les tâches autour des activités et de la culture, et développent une efficacité par l'amélioration des compétences de leur main-d'œuvre. C'est dans cette perspective que Peppart et Ward (2004, p. 178) proposent un modèle de compétences en technologie de l'information et soutiennent que l'expression des compétences particulières

dépend : « (1) des personnes qui appliquent leurs connaissances ; (2) de la façon dont les personnes intègrent leurs connaissances ; (3) de la façon dont les personnes interagissent avec les autres ; (4) de la façon dont les personnes coordonnent leurs activités ». Les travaux de Venkatraman (1994), de Dekleva et Drehmer (2001), de Luftman et al. (2004), de Peppart et Ward (2004) et de St-Amant et Renard (2004) en technologie de l’information et en gestion soutiennent l’amélioration des niveaux de performance que pourrait atteindre une organisation suite au développement des capacités organisationnelles spécifiques à la gestion des connaissances.

Présentation du modèle

Ce travail utilise le modèle de maturité des COSGC développé par Booto Ekionea (2008) comme repris à la figure 1. Ce modèle, préconise cinq niveaux de maturité et repose sur deux hypothèses inspirées de Venkatraman, (1994) : 1- plus le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d’une organisation est bas, plus les bénéfices attendus sont bas, tandis que 2- plus le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d’une organisation est élevé, plus les bénéfices attendus sont élevés.



On constate que les niveaux de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d’une organisation se divisent en deux grandes catégories : 1- niveaux d’évolution (niveau 1 : exploitation localisée, et niveau 2 : intégration interne); 2- niveaux de révolution (niveau 3 : ré-ingénierie, niveau 4 : ré-conception des réseaux, et niveau 5 : redéfinition de la mission d’affaires). Ainsi, pour mieux comprendre chaque niveau du MMCOSGC, on utilisera les trois principales dimensions des comme présentées à la section précédente. Aussi, pour mieux comprendre chaque niveau de maturité du MMCOSGC, le tableau 7 décrit les caractéristiques de chaque niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances.

Tableau 7 : Caractéristiques de chaque niveau de maturité du MMCOSGC

Niveaux de maturité	Caractéristiques
1	<ul style="list-style-type: none"> ◆ Infrastructure de GC: 1- au niveau technique : exploitation localisée et limitée de la GC (Venkatraman, 1994); la GC n'émerge pas comme un atout pour supporter les affaires, incompréhension entre la GC et les affaires (Luftman et al., 2004); 2- sur le plan des infrastructures structurales : absence de structures spécifiques à la GC. ◆ Processus de GC: 1- au niveau des processus de génération des connaissances : exploitation localisée (Venkatraman, 1994); 2- Manipulation des connaissances : processus initial, imprévisible et faiblement contrôlé (Dekleva et Drehmer, 2001), processus initial: capacité organisationnelle <i>ad hoc</i> et chaotique exprimée et mise en œuvre dans des processus qui ne sont pas définis (St-Amant et Renard, 2004); 3- processus d'application des connaissances : pas de processus formel, réaction au cas par cas (Luftman et al., 2004); ◆ Personnes de GC: 1- capacités à la facilitation de processus continu de GC : les personnes appliquent localement leurs connaissances (Peppart et Ward, 2004); 2- habiletés à développer l'infrastructure humaine : peu de motivation ou de récompense (Luftman et al., 2004); 3- habiletés d'utiliser les technologies de GC disponibles : le succès dépend des efforts et des compétences des individus (St-Amant et Renard, 2004); 4- culture de gestion des connaissances : absence d'une culture et d'une vision organisationnelle visant à encourager la captures, la conservation et le partage des connaissances (Armbrecht et al., 2001).
2	<ul style="list-style-type: none"> ◆ Infrastructure de GC: 1- au niveau technique : intégration interne de la GC (Venkatraman, 1994), la GC émerge comme un atout pour supporter les affaires mais incompréhension entre la GC et les affaires (Luftman et al., 2004); 2- sur le plan des infrastructures structurales : structures spécifiques à la GC mais isolées et non intégrées. ◆ Processus de GC: 1- au niveau des processus de génération des connaissances : intégration interne des processus de GC (Venkatraman, 1994); 2- manipulation des connaissances : processus structuré et reproductible (Dekleva et Drehmer, 2001); 3- processus d'application des connaissances : capacité organisationnelle exprimée et mise en œuvre dans des processus définis et documentés (St-Amant et Renard, 2004; Harigopal et Satyadas, 2001; Kaner et Kani, 2004; Siemens, 2001; Klimko, 2001). ◆ Personnes de GC: 1- capacité à la facilitation de processus continu de GC : les personnes intègrent leurs connaissances (Peppart et Ward, 2004); 2- habiletés à développer l'infrastructure humaine : amélioration des efforts, des compétences et des connaissances des individus et de l'organisation (St-Amant et Renard, 2004); 3- habiletés d'utiliser les technologies de GC disponibles : le succès dépend des efforts et des compétences organisationnelles; 4- culture de gestion des connaissances : la GC est perçue comme support des transactions et des différentes fonctions de l'entreprise pour une bonne prise de décision (Luftman et al., 2004).

3	<p>◆ Infrastructure de GC: 1- au niveau technique : intégration interne des TI dédiées à la GC à travers l'organisation, les TI supportent la GC, compréhension entre la GC et les affaires (Luftman et al., 2004); 2- sur le plan des infrastructures structurales : création de structures spécifiques à la GC à travers l'organisation.</p> <p>◆ Processus de GC: 1- au niveau des processus de génération des connaissances réingénierie des processus d'affaires à cause de la GC (Venkatraman, 1994); 2- manipulation des connaissances : processus pertinents et intégrés de la GC à travers l'organisation (Luftman et al., 2004), processus standards, cohérents, définis et assez bien compris (Dekleva et Drehmer, 2001); 3- processus d'application des connaissances : définition et répétition des processus pour l'amélioration des capacités de l'organisation (St-Amant et Renard, 2004).</p> <p>◆ Personnes de GC: 1- capacités à la facilitation de processus continu de GC : les personnes interagissent avec les autres (Peppart et Ward, 2004); 2- habiletés de développer l'infrastructure humaine : définition d'une politique organisationnelle de récompense et de motivation des employés; 3- habiletés d'utiliser les technologies de GC disponibles : développement des compétences techniques spécifiques à la GC supportant les affaires; 4- culture de gestion des connaissances : les stratégies de GC sont alignées aux stratégies d'affaires (Abou-Zeid, 2002).</p>
4	<p>◆ Infrastructure de GC: 1- au niveau technique : la vision et l'architecture technologique de la GC sont intégrées avec les partenaires (Luftman et al., 2004); 2- sur le plan des infrastructures structurales : création d'un département et d'un poste de vice-président GC au sein du comité de gestion.</p> <p>◆ Processus de GC: 1- au niveau des processus de génération des connaissances : ré-conception des réseaux de GC (Venkatraman, 1994); 2- manipulation des connaissances: processus maîtrisé, mesuré et contrôlé (Dekleva et Drehmer, 2001), 3- processus d'application des connaissances : les pratiques sont documentées et leurs résultats sont quantitativement contrôlables et mesurables (St-Amant et Renard, 2004).</p> <p>◆ Personnes de GC: 1- capacités à la facilitation de processus continu de GC: les personnes coordonnent leurs activités (Peppart et Ward, 2004); 2- habiletés de développer l'infrastructure humaine : les risques et les récompenses sont partagés (Luftman et al., 2004); 3- habiletés d'utiliser les technologies de GC disponibles : l'organisation identifie les compétences, les connaissances et les meilleurs pratiques et les intègre à ses processus d'action (St-Amant et Renard, 2004); culture de gestion des connaissances : les systèmes de gestion des connaissances (SGC) facilitent et conduisent les stratégies d'affaires.</p>
5	<p>◆ Infrastructure de GC: 1- au niveau technique: l'infrastructure TI et les SGC sont étendus aux partenaires extérieurs; 2- sur le plan des infrastructures structurales, création d'une structure spécifique au sein de l'organisation pour gérer l'intégration des TI et des SGC entre l'organisation et ses partenaires extérieurs.</p> <p>◆ Processus de GC: 1- au niveau des processus de génération des connaissances : ré-conception des réseaux de GC (Venkatraman, 1994); 2- manipulation des connaissances: processus maîtrisé, mesuré et contrôlé (Dekleva et Drehmer, 2001), 3- processus d'application des connaissances : les pratiques sont documentées et leurs résultats sont quantitativement contrôlables et mesurables (St-Amant et Renard, 2004).</p> <p>◆ Personnes de GC: 1- capacités à la facilitation de processus continu de GC : redéfinition de la mission d'affaires par la GC (Venkatraman, 1994), processus en amélioration continue (Dekleva et Drehmer, 2001); 2- habiletés de développer l'infrastructure humaine : la vision d'affaires et les processus de GC sont élaborées avec les partenaires (Luftman et al., 2004); 3- habiletés d'utiliser les technologies de GC disponibles : optimisation et amélioration continue (St-Amant et Renard, 2004); culture de gestion des connaissances : la vision d'affaires et l'infrastructure de GC sont adaptées entre l'organisation et ses partenaires (Luftman et al., 2004).</p>

Comme nous avons souligné que la gestion des connaissances diffère d'une organisation à une autre, d'une industrie à une autre et d'une réalité à une autre, la sous-section suivante présente brièvement le système de santé de la République Démocratique du Congo.

Synthèse sur le système de santé de la République Démocratique du Congo

La République Démocratique du Congo (RDC)¹ est un vaste [pays d'Afrique centrale](#) qui s'étend de l'[océan Atlantique](#) au plateau de l'est et correspond à la majeure partie du bassin du fleuve Congo. Avec une superficie de 2 345 000 km², une population de plus de 62 600 000 d'habitants répartis en 500 ethnies de groupes noirs africains, la RDC compte 11 provinces et Kinshasa en est la capitale. Sur le plan de la santé, la RDC est un vaste territoire avec des indicateurs sociaux de niveaux très préoccupants : 1- le taux de mortalité infantile est passé de 125 pour mille en 1990 à 170 pour mille en 2000; 2- le taux de mortalité maternelle de 800 décès pour 100 000 naissances vivantes en 1990 est passé à 2000 décès pour 100 000 naissances actuellement; 3- l'espérance de vie était de 42 ans en 2002 contre une moyenne africaine de 51 ans; 4- l'accès aux services de santé de base est inférieur à 26 pour cent.

En effet, la politique nationale de santé est basée sur les principes suivants: 1- la qualité des soins et des services; 2- l'efficacité et l'efficacités des projets et programmes de développement de santé; 3- la coordination intra et intersectorielle des prestations des services de santé; 4- la participation communautaire; 5- la décentralisation des prises de décisions; 6- la déconcentration des services de production des soins; 7- l'intégration des services spécialisés au sein des services de santé de base.

Ainsi, sur le plan purement opérationnel, le système de santé de la RDC adopte des politiques claires². En effet, le système sanitaire en RDC est assuré, sur le plan opérationnel, par des organisations de santé à vocation publique, privée, communautaire et religieuse.

Dans le cadre de la présente étude, deux centres hospitaliers dont l'un public et l'autre privé ont retenu notre attention. Il s'agit respectivement de la Clinique de référence de Kinshasa et du Centre hospitalier Libanga, tous deux situés dans la ville de Kinshasa³. En effet, les organisations de santé et le système sanitaire entier ont besoin de développer les capacités organisationnelles spécifiques qui aideront à capturer les données, les informations et les connaissances nécessaires aux soins de qualité aux patients. Cela améliorerait l'efficacité et l'efficacité de ces organisations par une bonne circulation de l'information et par un bon partage des connaissances entre les différents intervenants. Par conséquent, un diagnostic systématique des capacités organisationnelles existantes en la matière s'impose afin de relever ce défi.

Méthodologie : conception de l'étude de cas

Selon Yin (1994), l'étude de cas est une enquête empirique qui analyse un phénomène contemporain réalisé dans son contexte naturel, lorsque les frontières entre le contexte et le phénomène ne sont pas clairement évidentes, et dans laquelle plusieurs sources de preuves

¹ http://fr.wikipedia.org/wiki/République_démocratique_du_Congo

² <http://www.minisanterdc.cd/Ressourcesofficielles/normessanitaires.htm>

³ www.wikipedia.org/wiki/kinshasa

sont utilisées. Ainsi, nous avons retenu une recherche synthétique avec étude de cas multiples à niveaux d'analyse imbriqués (voir figure 2).

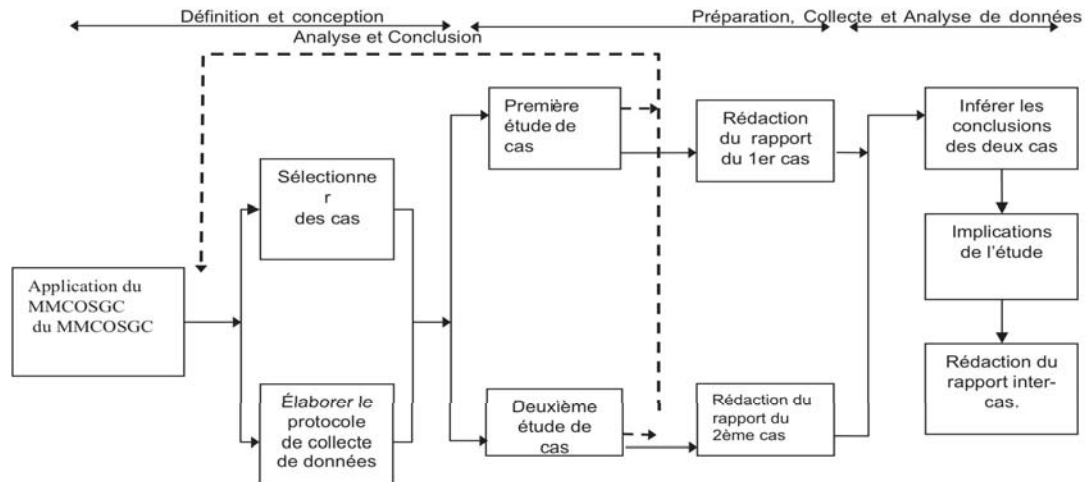


Figure 2: Étapes de développement de l'étude de cas (Adapté de Yin, 1994)

Ainsi, pour s'assurer d'une représentation fidèle de la réalité telle que le ou les acteurs du cas étudié l'ont vécue ou la vivent, Yin (1994) propose d'utiliser plusieurs sources d'information : documents, archives, entretiens, observation directe, observation participative et objets physiques. Cette étude a recours aux diverses sources de données (documents et Site Web), au questionnaire et à quelques entretiens. Les documents papier et les pages Web des organisations étudiées et du ministère de la santé en République Démocratique du Congo ont permis d'approfondir la compréhension des contextes organisationnels et sectoriels. Ainsi, Contandriopoulos et al. (1990) identifient trois grandes sources de données : l'utilisation de documents, l'observation par le chercheur et l'information fournie par les sujets au cours des entretiens. Pour cette thèse et comme l'indique la figure 4 ci-après, deux de ces trois sources de données seront utilisées à savoir : (1) l'utilisation de documents et (2) l'information fournie par les sujets pendant les entretiens. Le choix de cette thèse porte sur les techniques et les sources encadrées ci-dessous.

Déroulement et résultats de l'étude de cas au sein des deux organisations de santé

Cette section se propose de présenter les résultats d'une étude de cas menée auprès des deux organisations de santé à l'aide du modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances (MMCOSGC) proposé par Booto Ekionea (2008). Cette étude de cas vise donc à identifier le niveau de maturité atteint par chacune des deux organisations en matière des capacités en gestion des connaissances afin de relever, le cas échéant, les défis qui s'imposent à chaque organisation. Ainsi, en plus des résultats consolidés présentés au tableau 8, la première partie portera sur le déroulement de l'enquête et les résultats d'enquête au Centre Hospitalier Libanga (CHL), tandis que la deuxième partie fera porter sur le déroulement de l'enquête et les résultats d'enquête à la Clinique de Référence de Kinshasa (CRK).

Table 8: KMCMM Applied in LHC and RCK

No	KM Capabilities Features (characteristics)	KMCMM Level Reached	
		LHC	RCK
1	Technology Infrastructures	1	1
2	Specific Structures	2	2
3	Knowledge Generation Processes	2	2
4	Knowledge Manipulation Processes	2	1
5	Knowledge Application Processes	2	1
6	KM Culture	2	1
7	KM Motivation	3	1
8	KM Rewards	2	1
9	KM Inciting	1	1

Application du MMCOSGC au Centre Hospitalier Libanga (CHL)

Le CHL est un établissement privé à caractère social. Ouvert en 1991 pour venir en aide à la population environnante, il a aujourd'hui une capacité de 200 lits répartis dans des chambres climatisées avec installations sanitaires autonomes. Le CHL offre les services de chirurgie, de gynécologie, d'obstétrique, de néonatalogie, de dermatologie, de cardiologie, de gastro-entérologie, d'hémodialyse, de médecine interne, d'ophtalmologie, d'ORL, d'urgence, d'orthopédie, de laboratoire, d'imagerie médicale, de pédiatrie, de dentisterie, d'urologie, de soins intensifs, d'hémo-oncologie, de kinésithérapie et de radiothérapie.

Ainsi, l'administration du questionnaire a fait suite à la lecture des documents officiels, sur papier et sur pages Web, du Centre Hospitalier Libanga (CHL). En effet, les documents papiers et les pages Web du CHL ont permis d'approfondir la compréhension du contexte organisationnel et de saisir l'importance d'une bonne gestion des connaissances au sein du CHL. La présente étude recourt à un questionnaire semi-structuré avec échelle de Likert de 1 à 5 choix et composé des questions spécifiques à chaque niveau organisationnel (voir annexe 1) : 1- le personnel de l'hôpital au niveau décisionnel; 2- les gestionnaires et les chefs de départements cliniques au niveau intermédiaire; 3- les professionnels de santé (médecins, infirmiers, laborantins, etc.) au niveau opérationnel.

Les questions posées se sont inspirées de la définition du concept des COSGC telle que présenté au tableau 7. L'échelle de cinq sous-questions à chacune des 9 questions s'est inspirée des cinq niveaux de maturité qu'une organisation peut atteindre tels que définis à la revue de littérature portant sur la présentation du modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances (MMCOSGC) (voir aussi l'annexe 1 où est contenu le questionnaire de l'étude de cas).

Ainsi, afin de faciliter la compréhension des concepts clés et du questionnaire pour éliminer les réponses erronées et s'assurer de la validité du questionnaire, le chercheur principal avait organisé une séance de travail de présentation des concepts clés et d'introduction au questionnaire de l'étude de cas jeudi le 22 mars 2007 de 13h00 à 16h00, dans la salle de réunion du Centre Hospitalier Libanga (CHL), séance à laquelle avaient pris part les décideurs représentés par l'administrateur directeur financier et le directeur médical du CHL, les gestionnaires intermédiaires étant représentés par le chef du staff médical et la directrice du

nursing, et les professionnels de santé représentés par deux médecins, deux infirmières et un laborantin, comme présenté au tableau 9. Au cours de cette séance de travail, qui avait commencé par une brève présentation sur transparent électronique *PowerPoint*, le chercheur principal a présenté les concepts clés des capacités organisationnelles spécifiques à la gestion des connaissances (COSGC) et du modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances (MMCOSGC), ainsi que la structure et le contenu du questionnaire de l'étude de cas. Du côté du CHL, le directeur administratif et financier et le directeur médical ont chacun à son tour présenté respectivement l'historique du CHL et le fonctionnement de l'administration des soins de santé au CHL.

Ensuite eut lieu une période d'échanges entre le chercheur principal et les participants à l'étude. Notons que cette période d'échange a permis, d'une part, au chercheur principal de comprendre l'historique, les attentes des participants en ce qui concerne les résultats de l'étude et le fonctionnement en termes de partage des connaissances au sein du CHL, et d'autre part, aux participants à l'étude, de comprendre les concepts de gestion des connaissances, de COSGC et du MMCOSGC, ce qui a sans doute aidé à la compréhension du questionnaire par les répondants et à l'obtention de réponses reflétant la réalité du CHL. À la fin de la séance de travail, chaque participant a reçu un questionnaire sur papier et le directeur administratif et financier s'est chargé de recueillir les réponses aux questionnaires dans un délai de deux semaines. Ainsi, trois semaines plus tard, les réponses aux neuf questions du questionnaire des trois groupes de participants étaient prêtes.

Le directeur administratif et financier et le directeur médical, représentant la direction du CHL, le chef du staff médical, la directrice du nursing, deux médecins, un laborantin et deux infirmières ont répondu au questionnaire. Les réponses au questionnaire ont fourni la cartographie de ce que sont les COSGC au sein du CHL en faisant ressortir les différents niveaux de maturité atteint par le CHL pour chaque dimension des COSGC. À l'issue de l'enquête, et suivant le format du questionnaire, les résultats suivants ont été observés :

Tableau 9: Application du MMCOSG au sein du CHL

Dimension	Characteristics	LHC Diagnosis
KM Infrastructures	Technology Infrastructures	1- The professionals work manually and all of them use the paper medium; 2- The Web site does not facilitate the information exchange; 3- Absence of information and knowledge exchanges policies between professionals; 4- Knowledge management efforts duplications.
	Specific Structures	1- The medical daily meetings in the morning as KM structure are not sufficient to guarantee a significant long term KM support; 2- Daily meetings are a good point for good knowledge management.
KM Processes	Knowledge Generation Processes	1- Absence of IT dedicated to KM and lack of their integration with medical technologies; 2- The knowledge exchanges are done verbally or they are consigned in the paper reports.
	Knowledge Manipulation Processes	1- The knowledge manipulation processes are limited to the only entities dedicated to the patient care and neither are documented nor evaluated.
	Knowledge Application Processes	1- The knowledge, information, and data sources are rudimentary and limited; 2- The rare knowledge exchanges between professionals are done at the work meetings and within training seminars.
KM Skills	KM Culture	1- The KM initiatives are not the result of a written and observed

		strategic thinking; 2- KM practices are isolated.
	KM Motivation	1- People and organizational entities are not motivated to knowledge management.
	KM Rewards	1- Lack of clear policy regarding KM rewards.
	KM Inciting	1- Absence of KM incentive measures.

Application du MMCOSGC à la Clinique de Référence de Kinshasa (CRK)

La Clinique de Référence de Kinshasa (CRK) est l'hôpital de référence de la ville de Kinshasa, dont la population est évaluée à plus de huit millions d'habitants. Située dans la commune de la Gombe, la CRK est rattachée à la zone de santé de Kin-Malebo qui elle-même dépend de l'Inspection Médicale Urbaine de Kinshasa. Établissement public de santé, la CRK est un service du Ministère de la santé de la République Démocratique du Congo (c'est-à-dire sans personnalité juridique distincte) dotée d'une autonomie financière dans ce sens qu'en plus des subventions de l'État congolais, elle a le droit d'utiliser à la source ses propres recettes.

L'administration de soins de qualité est la mission principale dévolue à la CRK. En effet, elle assure tous les examens de diagnostic, la surveillance et le traitement des malades, des blessés et des femmes enceintes. Par ces soins, elle contribue au bien-être du peuple congolais en préservant et améliorant sa santé. La CRK contribue aussi à la formation des médecins, des professionnels de santé et des autres cadres par l'accueil chaque année d'un nombre important de stagiaires. La CRK assure également la formation continue de son personnel, soit par l'organisation et la participation aux séminaires, soit en l'autorisant à poursuivre des cours dans des universités ou des instituts tant nationaux qu'étrangers. Enfin, la CRK contribue à la recherche scientifique par diverses études cliniques auxquelles sont associés certains de ses médecins. La CRK a pour objectif général d'« améliorer l'état de santé de la population » avec comme objectifs spécifiques : 1- dispenser des soins diversifiés de qualité (préventifs, curatifs et de réadaptation);, 2- maximiser l'utilisation des soins et des services de la clinique; 3- rendre les services et les soins de la clinique accessibles à un plus grand nombre de la population.

Pour atteindre ces objectifs, la CRK dispose en son sein de toutes les spécialités médicales avec des praticiens de qualité, dont notamment le service pédiatrie, le service de chirurgie, le service de gynécologie-obstétrique, le service de médecine interne, le service de réanimation et des urgences, le service technico-médical et la pharmacie. Par ailleurs, l'infrastructure technologique (matériels et logiciels) de la CRK se présente comme suit : - 17 micro-ordinateurs avec 1 serveur, 5 imprimantes, systèmes d'exploitation (*Windows 98 à XP*), une dizaine de logiciels et d'applications informatiques, quelques systèmes de gestion des bases de données (*InterBase, Access, Paradox*).

L'administration du questionnaire présentait le même protocole que l'étude de cas précédente : lecture des documents officiels, sur papier et sur pages Web afin d'approfondir la compréhension du contexte organisationnel et de saisir l'importance d'une bonne gestion des connaissances au sein de la clinique.

Comme dans l'étude de cas précédente, le chercheur principal avait organisé une séance de travail de présentation des concepts clés et d'introduction au questionnaire de l'étude de cas, samedi le 31 mars 2007 de 13h00 à 16h00, dans la salle du comité de gestion de la Clinique de Référence de Kinshasa (CRK) et à laquelle avaient pris part les décideurs, représentés par le médecin directeur et le médecin chef du staff médical, l'administrateur gestionnaire, la pharmacienne chef et la directrice nursing, les gestionnaires intermédiaires, représentés par la

chef de service des ressources humaines et le chef de service informatique et les professionnels de santé représentés par deux médecins, deux infirmières et un laborantin. La participation massive du staff dirigeant de la clinique, des gestionnaires intermédiaires et des différents professionnels a permis des échanges de vue très fructueux et a aidé le chercheur principal à faire avancer les objectifs de la recherche. Les réponses au questionnaire ont permis de dresser la cartographie de ce que sont les COSGC au sein de la clinique en révélant les différents niveaux de maturité atteints par la CRK pour chaque dimension des COSGC. À l'issue de l'enquête, et suivant le format du questionnaire de l'étude de cas (voir annexe 1), les résultats suivants ont été observés :

Tableau 10: Application du MMCOSG au sein de la CRK

Dimensions étudiées	Caractéristiques	Niveau de maturité en COSG atteint par le CRK
Infrastructures de gestion des connaissances	Infrastructures technologiques	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: l'exploitation des infrastructures technologiques dédiées à la gestion des connaissances est absente ou limitée et localisée, car les quelques équipements informatiques disponibles et fonctionnels au sein du CRK servent exclusivement aux travaux bureautiques, à la comptabilité, au suivi budgétaire, au service de paie, à la facturation des malades, au suivi des honoraires des médecins et des infirmiers, à la ventilation du Grand-livre, au suivi de stock et à la facturation, etc.
	Structures spécifiques	La CRK est au 2 ^{ème} niveau de maturité du MMCOSGC: il y a émergence de structures spécifiques à la gestion des connaissances, mais isolées et non intégrées, car les réunions médicales se tiennent assez régulièrement.
Processus de gestion des connaissances	Processus de génération des connaissances	La CRK est au 2 ^{ème} niveau de maturité du MMCOSGC: il y a émergence des processus de génération des connaissances au niveau des entités internes parce qu'il y a des réunions et des discussions scientifiques sur les questions médicales.
	Processus de manipulation des connaissances	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: les processus de manipulation des connaissances sont imprévisibles, faiblement contrôlés et rudimentaires, car la direction de l'hôpital facilite peu les processus de manipulation des connaissances.
	Processus d'application des connaissances	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: il y a absence de processus formel d'application des connaissances : réaction au cas par cas, car les données, les informations et les connaissances ne sont pas intégrées.
Compétences des acteurs de gestion des connaissances	Culture de gestion des connaissances	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: il y a absence d'une culture et d'une vision organisationnelles favorisant la gestion des connaissances, par absence de politiques et de stratégies spécifiques.
	Motivation à la gestion des connaissances	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: les personnes appliquent localement leurs connaissances sans l'aide de l'organisation, car les efforts ne sont fournis ici et là que par

s	certaines personnes ou entités organisationnelles.
Récompenses à la gestion des connaissances	La CRK est au 1 ^{er} niveau du MMCOSGC: l'organisation offre peu de motivation ou de récompense aux ressources humaines pour la gestion des connaissances.
Incitatifs à la gestion des connaissances	La CRK est au 1 ^{er} niveau de maturité du MMCOSGC: le succès dépend des efforts et des compétences des entités organisationnelles et des individus.

Discussions et perspectives

Pour les études de cas, Yin (1994) préconise trois modes d'analyse : (1) l'appariement d'un modèle à la réalité; (2) la construction d'une explication; (3) les séries chronologiques. Le mode d'analyse retenu pour cette étude est l'appariement d'un modèle à la réalité, qui consiste à comparer une configuration théorique (prédite) avec une configuration empirique (observée) pour juger de la conformité entre le modèle et la réalité empirique.

Concernant la présente étude, le secteur de la santé a été choisi, et le MMCOSGC a été appliqué à deux organisations de santé afin de mesurer sa capacité à diagnostiquer une organisation et à confirmer les considérations de départ de l'étude.

Ainsi, pour connaître la capacité d'une stratégie de recherche à fournir des résultats généralisables, ce qui ne fut pas notre objectif pour cette étude, à d'autres populations, à d'autres contextes, à d'autres périodes, il faut se demander dans quelle mesure les résultats obtenus sont influencés par le contexte particulier dans lequel la recherche a été menée. Car plus la théorie sur laquelle la recherche est fondée est solide, et plus les résultats empiriques obtenus dans un contexte particulier sont cohérents avec les hypothèses théoriques, plus ces résultats sont généralisables à d'autres contextes.

En effet, pour chaque dimension des COSGC et en comparaison des résultats des deux cas d'organisations de santé étudiées (voir le tableau 8), il est possible d'infirmer ou de confirmer les considérations de départ, à savoir : « 1- plus le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d'une organisation est bas, plus les bénéfices attendus sont bas, 2- plus le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d'une organisation est élevé, plus les bénéfices attendus sont élevés ».

Les infrastructures de gestion des connaissances

Dans cette étude les deux organisations étudiées sont encore au premier niveau pour les infrastructures technologiques et au deuxième niveau pour les structures en gestion des connaissances. Cette position ne permet pas aux deux organisations de tirer le bénéfice d'une bonne gestion des connaissances. En effet, pour qu'une organisation de soins de santé prétende développer les capacités organisationnelles spécifiques à la gestion des connaissances en infrastructure de gestion des connaissances, elle doit rencontrer les caractéristiques ci-après : (1) au niveau technique, il y a l'exploitation des technologies de l'information(TI) dédiées à la gestion des connaissances médicales (GCM), l'infrastructure TI et les systèmes de GCM sont étendus aux partenaires extérieurs, les TI émergent comme un

atout pour supporter la GCM et la vision d'affaires; (2) Sur le plan des structures organisationnelles, il y a de structures ou postes spécifiques à la GCM.

En ce qui concerne la présente étude, nous avons adopté la définition des technologies de gestion des connaissances que proposent Richard et Jones (2005, p.45) : « les technologies de gestion des connaissances incluent celles employées pour créer, stocker, rechercher, distribuer et analyser les informations structurées et non structurées ». Selon ces auteurs, ces technologies de gestion des connaissances doivent augmenter les habiletés à aider les processus et à organiser l'information textuelle et les données afin d'augmenter les capacités de recherche de l'information, de trouver la signification et d'évaluer la pertinence pour donner de réponses aux questions, réaliser de nouvelles opportunités et résoudre les problèmes courant.

En effet, « les technologies de l'information peuvent augmenter (améliorer) le transfert des connaissances en allant au-delà de l'environnement communicationnel habituel de l'individu. Car, (dans la plupart des organisations) la recherche des sources des connaissances se limite habituellement aux collègues immédiats de travail qui sont en contact régulier et routinier avec lui. Cependant, il y a peu de chance que les collègues directs de l'individu lui communique de nouvelles connaissances dont il ne dispose pas parce qu'appartenant à la même clique, il y a forte chance qu'ils possèdent les mêmes connaissances » (Robertson et al, 1996 ; Kogrit & Zander, 1996 cité par Alavi & Leidner, 2001, p. 121).

C'est dans ce contexte que dans le secteur de la santé, les technologies (cliniques et administratives) sont cruciales dans la définition de la compétitivité des organisations de santé (Sharma et al, 2005). Car, en gestion des connaissances, plusieurs technologies sont susceptibles de soutenir les différentes initiatives comme par exemple les systèmes de gestion de documents, le Web-Cast qui facilitent la communication entre experts, les systèmes de gestion des apprentissages, etc. (Sharma et al, 2005).

Pour ce faire, une bonne architecture technologique pour la gestion des connaissances devrait (Gargeya & Sorrel, 2005, p.58) : 1- être omniprésent, fiable, *scalable*, maniable, et sécuritaire, 2- être capable de soutenir la transmission des données sous forme de voie et multimédia incluant les applications comme la télémédecine et la téléconférence, 3- utiliser les protocoles et les topologies standard de l'industrie, 4- être capable de soutenir diverses exigences des infrastructures en réseau associées aux soins des patients, à la recherche médicale, à la formation et à l'administration, 5- être moins coûteuse tant à l'implantation qu'à l'opérationnalisation.

Dans cette étude, il est considéré que les structures organisationnelles spécifiques à la gestion des connaissances peuvent jouer un rôle important selon la vision de gestion des connaissances que se donne l'organisation. Leur absence constitue un frein important à une bonne gestion des connaissances. Car, sans structures ou postes spécifiques à la gestion des connaissances, il est difficile que la gestion des connaissances joue le rôle que l'organisation entendrait lui donner. C'est ainsi que, par exemple, Malhotra (1997) propose la création d'un poste de cadre supérieur chargé de la gestion des connaissances (Chief Knowledge Officer, CKO).

En effet, Beveren (2003) constate que certaines structures organisationnelles des organisations de santé sont de véritables obstacles à une bonne gestion des connaissances et que la structure hiérarchique est enracinée culturellement : 1- les structures départementales au sein de l'organisation sont souvent basées sur les groupes professionnels et ne sont pas orientées vers la tâche, 2- les professionnels oeuvrant dans de structures existantes travaillent en isolement et par conséquent, il y a manque d'interdisciplinarité, 3- la domination de la structure hiérarchique avec plusieurs niveau de gestion où la circulation de l'information est très rigide,

etc. C'est donc un défi de taille pour les organisations de santé qui souhaiteraient développer les capacités à mieux gérer leurs connaissances organisationnelles.

Les processus de gestion des connaissances

Dans cette étude les deux organisations étudiées sont encore au premier et au deuxième niveau pour les processus de génération, de manipulation et d'application des connaissances. Cette position ne permet pas aux deux organisations de tirer le bénéfice d'une bonne gestion des connaissances. En effet, pour qu'une organisation de soins de santé prétende développer les capacités organisationnelles spécifiques à la gestion des connaissances en processus de gestion des connaissances, elle devrait rencontrer les caractéristiques ci-après : (1) au niveau des processus de génération des connaissances, il y a réingénierie des processus d'affaires à cause de la gestion des connaissances médicales (GCM) avec ré-conception des réseaux de GCM (Venkatraman, 1994) avec ses partenaires; (2) au niveau de la manipulation des connaissances, il y a existence des processus pertinents, intégrés, maîtrisés, mesurés et contrôlés de la GCM à travers l'organisation (Luftman et al., 2004), processus de GCM standards, cohérents, définis et assez bien compris (Dekleva et Drehmer, 2001), (3) processus d'application des connaissances médicales : définition et répétition des processus pour l'amélioration des capacités de l'organisation, les pratiques sont documentées et leurs résultats sont quantitativement contrôlables et mesurables (St-Amant et Renard, 2004).

Ainsi, les processus de génération des connaissances ou de création des connaissances incluent toutes les activités par lesquelles de nouvelles connaissances sont produites au sein de l'organisation. Alavi et Leidner (2001), quant à eux, soutiennent que la génération des connaissances se fait dans de cadres spécifiques : 1- le design organisationnel ; 2- la construction des communautés des pratiques ; 3- la création des espaces de partage des connaissances. C'est d'ailleurs ce que soutient Desouza (2005) qui résume les processus de gestion des connaissances en création, dissémination et utilisation des connaissances au sein d'une organisation. Parce que la création des connaissances se réfère à l'identification des sources internes et externes des connaissances et aux procédures d'extraction de ces connaissances pour servir de « inputs » au processus de gestion des connaissances. Par ailleurs, la capture et le stockage des connaissances sont l'ensemble de procédures et de procédés de codification des connaissances dans un support de stockage lisible par une machine. La codification des connaissances explicites, quant à elle, fait appel au transfert des connaissances explicites codées sur divers formats dans un format de document électronique (Desouza, 2005). Quant à la codification des connaissances tacites, elle consiste à les convertir en connaissances explicites sur un support électronique (Desouza, 2005).

Concernant les processus de manipulation des connaissances, ils permettent d'augmenter la visibilité des connaissances en la partageant ou en la transférant à partir d'un porteur (le fournisseur, le propriétaire ou la source de la connaissance) à l'autre (le chercheur ou la cible de la connaissance) dans l'espace ou le temps. Parce que la manipulation des connaissances permet d'obtenir les connaissances provenant des membres d'une organisation ou de sources externes en les codifiant, les indexant et les capturant pour une utilisation ultérieure (Alavi & Leidner, 2001). En effet, une fois que les informations et les connaissances d'une organisation sont stockées, elles doivent être rendues disponibles pour faciliter l'accès aux autres membres de l'organisation (Desouza, 2005). Toutefois, seulement les personnes autorisées par l'organisation et selon leurs besoins de service seront habilitées à manipuler les informations et les connaissances concernées. Car, « l'institutionnalisation des meilleures pratiques par leur stockage via des technologies de l'information devrait faciliter une bonne manipulation des routines et des situations prédictibles durant les changements environnementaux stables ou incrémentaux » (Alavi & Leidner, 2001, p.122). Parce que, quand le changement est radical et

discontinu, il y a un besoin persistant pour le renouvellement continu des prémisses de base en faisant recours aux pratiques archivées dans des répertoires des connaissances (Malhotra, 1999).

Enfin, ce ne sont pas les processus de création (génération), de stockage ou de transfert des connaissances qui apportent la performance organisationnelle mais c'est l'application (utilisation) effective des connaissances. En effet, la performance organisationnelle dépend plus à l'habileté de convertir la connaissance en une action effective et moins à la valeur de la connaissance elle-même (Alavi & Leidner, 2001). Car, il est reconnu qu'il y a un fossé entre ce que les organisations savent et ce qu'elles font réellement (Pfeffer & Sutton, 2000). Davenport et Prusak (1998) identifient trois raisons principales de la non application des connaissances : 1- manque de confiance envers les connaissances dont on ignore la source; 2- manque de temps ou d'opportunité d'appliquer les connaissances; 3- aversion au risque (particulièrement dans les organisations qui punissent sévèrement les erreurs). En effet, les connaissances ne pourront jamais aider à l'innovation si les gens ne les appliquent pas (Desouza, 2005). Il reste, cependant, à « savoir quelles règles et routines appliquer à un problème spécifique : ce qui suppose que l'organisation a appris et codifié un nombre important de règles et de routines, ainsi choisir lesquelles activées pour la résolution d'un problème spécifique est toute la problématique d'application des connaissances » (Alavi & Leidner, 2001, p.122). Bien plus, en améliorant la taille des réseaux internes d'individus et en augmentant le nombre de mémoires organisationnelles disponibles, les technologies de l'information permettent aux connaissances organisationnelles d'être appliquées dans le temps et dans l'espace (Alavi & Leidner, 2001). Car, les Technologies de l'information peuvent améliorer la vitesse de l'intégration et de l'application des connaissances en codifiant automatiquement les routines organisationnelles.

Au niveau des organisations hospitalières et cliniques, il est important de développer ou d'entretenir les processus pour l'amélioration des connaissances médicales : démontrer la maîtrise de capture et de partage des connaissances établies et évolutives sur les sciences biomédicales, cliniques, et apparentées (par exemple, épidémiologique et social-comportemental) et l'application de ces connaissances aux soins des patients; démontrer une approche de pensée investigatrice et analytique aux situations cliniques; support documentaire à toutes les disciplines médicales et paramédicales. Aussi, au niveau des professionnels de santé (médecins, infirmiers, laborantins, etc.), les institutions de santé devraient encourager et encadrer les processus d'apprentissage et d'amélioration des pratiques: 1- étudier et évaluer les pratiques en matière de soins de santé, évaluez et assimilez les évidences scientifiques et améliorer les pratiques des soins des patients; 2- analyser les expériences des pratiques et les utiliser à l'aide d'une méthodologie systématique; 3- localiser, évaluer, et assimiler l'évidence des études scientifiques liées aux problèmes de la santé des patients; 4- obtenir et gérer les informations sur la population des patients; 5- appliquer les connaissances sur les études conceptuelles et des statistiques sur les études cliniques et de toute information sur l'efficacité des diagnostics et thérapeutiques; 6- utiliser les technologies de l'information pour gérer les informations, les accès en ligne des informations médicales et la formation des acteurs de l'organisation; 7- facilitez les apprentissages des étudiants et d'autres professionnels de soins de santé.

« Un autre aspect important de la capacité d'apprendre d'une organisation concerne l'habileté d'apprendre à partir des erreurs des autres. Un bon stockage (enregistrement) des incidents et des accidents est ici très important ; ainsi que la culture dans laquelle les incidents et les accidents sont actuellement rapportés » (Wahle & Groothuis, 2005, p.31). Ainsi, dans le secteur public comme privé, « le succès « des incitatifs » à l'apprentissage organisationnel dépend beaucoup de la culture et du comportement de la direction (du staff) » (Wahle &

Groothuis, 2005, p.31). En général, les organisations devraient encourager l'assistance (mentoring) et l'apprentissage par la gestion des connaissances : 1- en mettant en place une assistance formel ou informel : individu à individu ou créer une équipe de conseillers virtuels joignables par le web; 2- encourager une formation basée sur la performance : concevoir un modèle de formation basé sur les habilités et le regroupement des connaissances nécessaires à l'accomplissement des tâches; 3- encadrer les résistances aux changements en ce qui concerne les besoins d'acquisition et de partage des connaissances dans un contexte de travail d'équipe.

Les personnes/acteurs de gestion des connaissances

Dans cette étude les deux organisations étudiées sont encore au premier, au deuxième et au troisième niveau pour la culture de gestion des connaissances, la motivation à la gestion des connaissances, la récompenses à la gestion des connaissances et les incitatifs à la gestion des connaissances. Cette position ne permet pas aux deux organisations de tirer le bénéfice d'une bonne gestion des connaissances. En effet, pour qu'une organisation de soins de santé prétende développer les capacités organisationnelles spécifiques aux compétences des personnes/acteurs de gestion des connaissances, elle doit rencontrer les caractéristiques ci-après : 1- sur le plan culturel, s'assurer qu'il y a une culture et une vision organisationnelle visant à encourager la capture, la conservation et le partage des connaissances médicales (Armbrecht et al., 2001) ; 2- avoir les capacités à la facilitation des processus continus de GCM : les personnes appliquent, intègrent leurs connaissances et interagissent avec les autres (Peppart et Ward, 2004), redéfinition de la mission d'affaires par la GCM (Venkatraman, 1994) ; 3- avoir les habiletés à développer les aspects humains: motivation et récompense des employés, définition d'une politique organisationnelle de récompense et de motivation des employés, les risques et les récompenses sont partagés, la vision d'affaires et les processus de GC sont élaborées avec les partenaires (Luftman et al., 2004) ; 4- avoir les habiletés d'utiliser les technologies de GCM disponibles : amélioration des efforts, des compétences et des connaissances des individus et de l'organisation, l'organisation identifie les compétences, les connaissances et les meilleurs pratiques et les intègre à ses processus d'action, optimisation et amélioration continue (St-Amant et Renard, 2004), développement des compétences techniques spécifiques aux TI supportant la GCM.

Ainsi, la culture organisationnelle en gestion des connaissances devrait comprendre les informations sur la vision, la politique et les stratégies à court, moyen et long termes de l'organisation en la matière afin de permettre aux membres d'une organisation de travailler dans un esprit de continuité de cette culture. Ce qui facilitera l'alignement de la mission, des objectifs et stratégies de la gestion des connaissances à ceux de l'organisation (Abou-Zeid, 2002). En effet, la culture organisationnelle a un impact majeur sur les efforts à consentir pour la gestion des connaissances, car la culture influence les normes de comportement quotidien des employées autant qu'elle guide les relations interpersonnelles. Ces normes déterminent quel comportement est approuvé ou désapprouvé au sein de l'organisation. Cette culture reçoit l'impulsion et le support de la haute direction avec la définition des actions concrètes, des processus d'affaires, des priorités, des mécanismes de motivation du personnel et des mesures de performance (Armbrecht, F.M. Ross et al, 2001). Car, le rôle stratégique d'une organisation devrait refléter une vue dynamique des capacités organisationnelles (Grant, 1996; Teece et al, 1997) parce que la gestion des connaissances est une activité managériale aidant l'organisation à s'adapter aux besoins du marché (Lee et al, 2001).

Or, un des défis à relever par les organisations du secteur de la santé est de combattre la culture de résistance et la culture de protection des connaissances individuelles (Svieby &

Simons, 2002; Beveren, 2003). En effet, cette catégorie d'organisations de même que les organisations publiques ont plus de défis à relever en ce qui concerne la culture collaborative dans le partage des connaissances individuelles que leurs vis-à-vis du secteur privé (Svieby & Simons, 2002). Car « il y a de fortes résistances au changement tant au niveau individuel qu'à celui de la haute direction qui inhibent l'adaptation et la réaction aux exigences environnementales » (Beveren, 2003, p.92). En effet, les changements de politiques gouvernementales causent souvent de confusion et peuvent retarder l'implantation des stratégies de gestion des connaissances pour le cas de la CRK qui est en fait un service de l'état plutôt qu'une organisation autonome de toute décision.

Un autre aspect culturel important est le partenariat de l'organisation de santé avec son environnement d'affaires. En effet, le partenariat avec tous les concernés (stakeholders) comme l'industrie privée et les organisations communautaires est critique pour développer une bonne politique de gestion des connaissances dans le secteur. Par personnes concernées (stakeholders), il faut comprendre toute personne ou organisation dont les intérêts pourraient être affectés positivement ou négativement (Riedgman et Lindsay, 2006). Par ailleurs, la transparence dans les politiques de développement est très attendue auprès des personnes concernées et facilite l'implication des partenaires du milieu (Riedgman et Lindsay, 2006).

En effet, dans le cadre de la gestion des connaissances dans une organisation sanitaire, la direction, les gestionnaires et tous les professionnels de santé doivent : 1- comprendre la culture de l'organisation et la prolonger au niveau de la gestion quotidienne des données, des informations et des connaissances, ensuite, comprendre les enjeux et ce qu'est la gestion des connaissances dans le contexte d'organisation de santé; 2- avoir une vision claire de la gestion des connaissances à tous les niveaux organisationnels; 3- donner le soutien nécessaire à la gestion des connaissances à tous les niveaux organisationnels peut être avec de projets pilotes pour bien cerner les besoins; 4- octroyer les récompenses aux employés afin de motiver leur comportement en énonçant les règles ou les mesures claires dans le but de récompenser les bons comportements et de sanctionner les mauvais en ce qui concerne la gestion des connaissances; 5- enfin, mettre en place les mécanismes de transfert de connaissances avec deux principales voies : - capturer les connaissances individuelles et les codifier par le biais des technologies et supports appropriés afin de permettre aux autres personnes d'en lire : exemple, l'exécution des tâches se fera par le biais des fiches électroniques et autres dispositions technologiques, - utiliser les moyens technologiques disponibles pour favoriser les discussions entre les acteurs intéressés par un sujet spécifique.

Une autre habileté à développer par les organisations est la motivation à la gestion des connaissances. En effet, la motivation est l'habileté de faciliter les processus continus du partage des connaissances et le renouvellement des connaissances, l'habileté à développer les ressources humaines et la culture organisationnelle qui facilite le partage des connaissances, et l'habileté d'utiliser les technologies disponibles pour servir à la création, au partage et à la documentation des connaissances sont quelques exemples des qualifications exigées pour ce type de fonctions. Ainsi, parlant d'une organisation de santé envisageant le déploiement des systèmes de gestion des connaissances, Sharma et al (2005) soutiennent que celle-ci devrait tenir compte de la place des compétences que détiennent ses membres dans les processus d'affaires. En effet, « l'expertise tactique et l'expérience individuelle de chaque professionnel devraient être capturées et prises en compte dans la stratégie, la politique et les pratiques de gestion des connaissances à tous les niveaux de la gestion de l'hôpital et des activités de soins aux patients ». Parce que « les connaissances intangibles des employés peuvent être à la base des innovations radicales dans la planification, la gestion des changements, la culture de l'hôpital et dans différentes approches » (Sharma et al, 2005, p.2).

En effet, il y a lieu de souligner que le concept des compétences comprend donc : les connaissances factuelles, les habiletés, l'expérience, le jugement de valeur et les réseaux sociaux (Sharma et al, 2005). Ainsi, l'organisation est ici perçue comme étant unique, avec cohérence interne et habileté à résoudre les problèmes de tous les jours. Cette approche est d'autant plus importante qu'elle perçoit l'organisation comme l'intégration entre plusieurs sources de connaissances cohabitant avec la chaîne de valeur de l'organisation et la chaîne de valeur des partenaires détenteurs et bénéficiaires du flux des connaissances. Car, en théorie des ressources, ce ne sont pas les investissements en capitaux, l'acquisition de la technologie ou les compétences techniques qui font la différence mais bien les compétences managériales d'une ressource (en l'occurrence la connaissance) qui sont à la base du succès.

Par ailleurs, Alavi et Leidner (2001) rappellent que les organisations ont besoin d'une rénovation culturelle profonde parce que traditionnellement les organisations récompensent leurs professionnels en fonction de leur performance individuelle et de leur savoir-faire et non en fonction de leur capacité d'apprendre et de partager ce qu'ils savent. En effet, la politique organisationnelle en matière de récompenses est un aspect déterminant de la réussite ou de l'échec de l'introduction de la gestion des connaissances dans une organisation. Car, celle-ci doit : 1- reconnaître la propriété de la connaissance au niveau individuel et organisationnel; 2- reconnaître l'importance du partage et de la réutilisation des connaissances; 3- récompenser les individus et les équipes qui assure la promotion de la gestion des connaissances dont notamment la capture des discussions et décisions des équipes, le mentorat, la documentation des leçons apprises (lessons learned), la transformation des connaissances implicites en connaissances explicites (making tacit knowledge explicit); 3- encourager le leadership et le management qui encourage la gestion des connaissances afin d'augmenter la valeur, d'avoir une vision nette de l'organisation, d'aligner les objectifs d'affaires avec ceux de la gestion des connaissances, de définir une nouvelle voie du travail de gestionnaire, d'encourager la diversité – reconnaître le changement à la composition des forces de travail et de la diversité de valeurs, etc.

En plus, « les incitatifs sont très importants pour lever certaines barrières majeures au succès du stockage des connaissances » (Alavi et Leidner, 2001, p.127). Ces barrières incluent : 1- le manque de temps aux employés de contribuer à la génération de leurs connaissances ; 2- la culture corporative laquelle historiquement n'a jamais récompensé les employés qui contribuent à la création de leurs connaissances et les partagent avec les autres. En effet, en ce qui concerne les organisations de santé, celles-ci ont besoin de capturer et d'analyser des données cliniques ainsi que celles du marché afin de les visualiser et de les organiser en information utile pour la prise de décision (Pavia, 2001). Car, les données, les informations et les connaissances dont les professionnels de santé ont besoin ne se limitent pas seulement à une organisation de santé mais s'étendent à un réseau d'organisations de santé d'une région géographique donnée où les transferts des malades et des résultats de laboratoires sont très fréquents (Pavia, 2001). En outre, les organisations de santé devraient inciter leurs entités organisationnelles à mettre à la disposition des consommateurs, des patients, des cliniciens, des dirigeants, des gestionnaires et des autres membres du personnel des informations et des connaissances pertinentes (Beveren, 2003). Cette façon de faire aiderait à la survie et à maintenir compétitives les organisations de santé qui évoluent souvent dans de contextes complexes et arides. C'est ainsi qu'il est de plus en plus évident que le développement des capacités organisationnelles spécifiques en gestion des connaissances est un des facteurs critiques dans presque tous les domaines d'affaires (Earl, 2001).

C'est d'ailleurs ce que Smith (2004, p.9) soutient lors qu'il écrit : « il est important pour toutes les organisations de promouvoir le transfert des connaissances, à travers tous ses processus d'affaires, à tous les acteurs de chaîne de valeur ». En effet, « les communautés

bien organisées et vitales permettent aux gens de superviser les autres, de collaborer et de travailler ensemble dans les équipes virtuelles » (Smith, 2004, p.13). Par ailleurs, faisant un rapport sur les avantages d'un environnement collaboratif, Chatzkel (2004, p.6) affirme ceci : « nous avons éprouvé le besoin de mettre à la disposition de nos employés un environnement collaboratif pour un apprentissage continu et l'amélioration de la performance au sein de l'organisation ». En effet, « quand la direction (le staff) donne l'opportunité à ses employés de suivre un processus d'apprentissage continu, l'organisation comme un tout développe une grande capacité d'apprentissage et de compétitivité » (Wahle & Groothuis, 2005, p.31).

Conclusion

À la question de savoir pourquoi un hôpital a-t-il besoin d'un nouveau système de gestion des connaissances, Rubenstein et Geisler (2005, p. 44) donnent la réponse en avançant huit raisons (c'est pour) : « 1- établir un pont et briser l'isolement entre les spécialistes et les autres entités organisationnelles de soutien; 2- apprendre de ses propres expériences et des expériences des autres organisations; 3- éviter de répéter les mêmes erreurs ou désastres dans plusieurs aspects dont notamment la gestion des maladies, le contrôle des infections, la mauvaise utilisation des instruments et la duplication des équipements coûteux; 4- soutenir la formation à tous les niveaux; 5- soutenir les entités organisationnelles faibles ou avec moins de ressources par l'expérience des unités organisationnelles fortes et riches en ressources; 6- partager les « trucs et astuces »; 7- éviter le dysfonctionnement au niveau du design organisationnel, de la direction (staffing) et de la répartition des tâches (workflow); 8- changer les méthodes de l'amélioration de la productivité, la réduction des coûts et services aux patients ».

Ainsi, cette étude s'est fixée comme objectif d'appliquer le modèle de maturité des capacités organisationnelles spécifiques à la gestion des connaissances (MMCOSG) afin d'aider les organisations de santé étudiées à faire un diagnostic de leurs capacités et de développer de nouvelles capacités organisationnelles spécifiques à la gestion des connaissances (COSGC). Car, cette étude prouve que le diagnostic des COSGC ne pourrait mieux se faire qu'à l'aide d'un MMCOSG en tenant compte des trois grandes dimensions des COSGC à savoir les infrastructures de gestion des connaissances, les processus de gestion des connaissances et les compétences des personnes/acteurs de gestion des connaissances.

En effet, selon Contandriopoulos et al. (1990), la validité interne repose sur la capacité d'une étude à mettre à l'épreuve, de façon simultanée, un ensemble de relations composant un modèle théorique. La validité interne est appréciée par : (1) la qualité, la complexité et l'exhaustivité de l'articulation théorique sur laquelle s'appuie l'étude ; (2) l'adéquation entre le mode d'analyse choisi et le modèle théorique à mettre à l'épreuve. C'est ainsi que la comparaison des résultats des deux cas d'organisation de santé étudiées démontre que les deux hypothèses de départ ont été affirmées (Venkatraman, 1994) : « 1- quand le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d'une organisation est bas, les bénéfices attendus sont aussi bas, 2 - tandis que plus le niveau de maturité des capacités organisationnelles spécifiques à la gestion des connaissances d'une organisation est élevé, les bénéfices attendus seraient aussi élevés ». Car, il est constaté que l'absence ou les niveaux limités des COSGC dans les deux organisations étudiées les empêchaient de tirer profit des bénéfices que procure une bonne gestion des connaissances.

Par ailleurs, comme toute œuvre humaine est difficilement exempte d'imperfection, les recherches et les résultats de la présente étude ont des limites. En effet, le grand nombre de

concepts caractérisant et subdivisant le concept des COSGC n'a pas facilité la tâche au chercheur principal et aux participants à l'étude de cas. Il serait donc intéressant que les études ultérieures à celle-ci se penchent sur chaque caractéristique du concept des COSGC afin d'enrichir la compréhension et de trouver les moyens spécifiques d'application et de son évolution dans le temps.

Enfin, il est possible que les résultats obtenus des deux études de cas dans le secteur hospitalier et clinique aient une portée limitée et ne soient pas généralisables. Ce qui n'était pas non plus l'objectif de la présente étude. Il serait donc enrichissant que les recherches à venir se penchent sur des applications plus larges du MMCOSGC dans le but d'aller chercher une standardisation possible dans une industrie ou un contexte donné.

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USING A MODERATOR-TYPE RESEARCH MODEL TO IDENTIFY THE DETERMINING FACTORS IN SATISFACTION OF USING HIGH SPEED INTERNET IN HOUSEHOLD

Telecommunications industry is continually in a shift of change, alimented by technological innovation and consumers' demand for always better and faster communication tools. High speed Internet is now an integral part of everyday life of more than a billion people. And, as the tendency is showing up, its use will be still increasing in the future. Thus, this technology has and will continue to have major social and economic impacts. Individual adoption of technology has been studied extensively in the workplace, but far less attention has been paid to adoption of technology in household (Brown & Venkatesh, 2005). So, few studies have been conducted until now to verify satisfaction of household people using high speed Internet. The aim of this study is then to investigate the determining factors in satisfaction of using high speed Internet by people in household. On the basis of the moderator-type research model developed by Brown and Venkatesh (2005) to verify the determining factors in intention to adopt a personal computer in household by American people, this study examines the determining factors in satisfaction of using high speed Internet in household by Canadian people. The methodology followed to conduct the study was the telephone survey research. Data were collected from 322 randomly selected Atlantic Canadian people using high speed Internet at home. Data analysis was performed using the structural equation modeling software Partial Least Squares (PLS). The results got revealed that near from half of the variables examined in the study showed to be determining factors in satisfaction of using high speed Internet by people in household.

Introduction and Background for the Study

The vast technological possibilities of the Internet are at the basis of the fast progress of the information society (Al-Omouh & Shaqrah, 2010). It has become one of the most important means of new forms of cooperation and competition in the various subsystems of society (Al-Omouh & Shaqrah, 2010). Anderson (2008) argues that Internet has a great influence on people's connections to friends, families, and their communities, on the social system of formal and informal support, and on the working of groups and teams. It is also the valuable instrument of scientific, social, marketing researches, and business development (Al-Omouh & Shaqrah, 2010). In addition, the Internet, as an information and entertainment technology, affects education, government, publishing, retail industry, banking, broadcast services, health care delivery, and so on (Al-Omouh & Shaqrah, 2010). So the scope of the Internet is now

worldwide and in all sectors of the society, and then forces to deliver this essential resource to people in households. To provide the reader with a good overall view of the actual Internet population, we have regrouped in Table 1 the different generations (as conventionalized by Strauss and Howe's book: *Generations: The History of America's Future, 1584 to 2069*) and the percentages of adult both total and online.

Table 1. Generations Explained
(adapted from Jones & Fox, 2009, p. 1)

<i>Generation Names</i>	<i>Birth Years, Ages in 2009</i>	<i>% of Total Adult Population</i>	<i>% of Internet-Using Population</i>
Gen Y (millennials)	Born 1977-1990, Ages 18-32	26	30
Gen X	Born 1965-1976, Ages 33-44	20	23
Younger Boomers	Born 1955-1964, Ages 45-54	20	22
Older Boomers	Born 1946-1954, Ages 55-63	13	13
Silent Generation	Born 1937-1945, Ages 64-72	9	7
G.I. Generation	Born -1936, Age 73+	9	4

Source: Pew Research Center's Internet & American Life Project December 2008 survey. N = 2,253 total adults, and margin of error is $\pm 2\%$. N = 1,650 total Internet users, and margin of error is $\pm 3\%$.

As shown in Table 1, "Contrary to the image of Generation Y as the 'Net Generation,' Internet users in their twenties do not dominate every aspect of online life. Generation X is the most likely group to bank, shop, and look for health information online. Boomers are just as likely as Generation Y to make travel reservations online. And even Silent Generation Internet users are competitive when it comes to email (although teens might point out that this is proof that email is for old people). The Web continues to be populated largely by younger generations, as more than half of the adult Internet population is between 18 and 44 years old. But larger percentages of older generations are online now than in the past and they are doing more activities online, according to the Pew Research Center's Internet & American Life Project surveys taken from 2006-2008." (Jones & Fox, 2009, p. 1)

As the Internet population is continually growing since its infancy, the need for always faster and performing telecommunications networks allowing people to communicate and to perform their daily activities at a satisfying pace has become an everyday concern for all the countries, hence the apparition of high speed Internet in the middle of the 1990s. For example, for more than a decade, the Government of Canada has been developing strategies to enable Canadians to become participants in the information society (Government of Canada, 1999; Government On-Line Advisory Panel, 2003; quoted in Middleton & Ellison, 2006, p. 1). As part of this strategy, it was recommended that broadband Internet access be made available to all Canadian households (National Broadband Task Force, 2001; quoted in Middleton & Ellison, 2006, pp. 1-2). There are still many not served and underserved areas in the country (CRACIN, 2005), and the Telecommunications Policy Review Panel has urged the federal

government to “reaffirm its commitment to maintaining Canada’s global broadband leadership and to ensuring that broadband access is available everywhere in the country” (Telecommunications Policy Review Panel, 2006, p. 8-5; quoted in Middleton & Ellison, 2006, p. 2). Similarly, as a public issue, broadband has taken on a higher profile in recent months because of President Obama’s decision to include funding for broadband in the American Recovery and Reinvestment Act (ARRA); also ARRA included \$7.2 billion for broadband with the goal of accelerating the deployment of broadband Internet access in the United States (Horrigan, 2009). These are just two examples here of how much all of the countries are putting a strong emphasis on strategies capable of promoting the acceleration of the deployment of high speed Internet everywhere in the world. As a result, the number of households with a broadband Internet connection continues to grow with one in five households worldwide expected to have a fixed broadband connection by the end of 2009, according to Gartner Research (Digital Home, 2009).

In 2009, Canada ranked fifth in broadband penetration. In fact, leading the high speed Internet race at the beginning of 2009 was South Korea at 86%, followed by the Netherlands (80%), Denmark (75%), and Hong Kong (72%), followed by Canada and Switzerland (69%). Rounding out the top ten were Norway (67%), New Zealand (65%), France, Singapore and the UK (62%). The United States ranked 14th at 60%. Overall, in 2009, approximately 21 countries had high speed Internet connections in at least 50 percent of homes. (Digital Home, 2009)

But, what is high speed Internet? According to Gill (2010), ever wonder what a company means when it says its Internet service is “high speed”? Then check out Table 2 that documents the plethora of technologies that the Federal Communications Commission (FCC) counts as “broadband” -- be warned, speeds can vary by as much as 2,000 percent (for example, regarding Canada, Dunn (2010) argues that high speed Internet access is expensive and slow)! In short, “broadband” is defined by the FCC as anything other than “dial up” -- and “high speed” has no commonly-agreed-to definition (Gill, 2010). So, in this paper, when we talk about “high speed Internet” or “broadband”, we then consider the two as the same telecommunications technology which is faster than “dial up”.

Table 2. Main High Speed or Broadband Technologies
(adapted from Gill, 2010, pp. 3-4)

<i>Technologies</i>	<i>Speeds¹</i>
Cable	Basic: 4 Mbps to 6 Mbps High End: 12 Mbps to 16 Mbps and faster
DSL	Basic: 768 Kbps to 1.5 Mbps High End: 3 Mbps to 7 Mbps
Fiber Optic Cable	15 Mbps to 25 Mbps
Mobile -- EDGE	Up to 58 Kbps, average 22 Kbps
Mobile -- 3G	AT&T: Download: 700 Kbps to 1.7 Mbps; Upload: 500 Kbps to 1.2 Mbps Sprint: Download: 600 Kbps to 1.4 Mbps Verizon: 600 Kbps to 1.4 Mbps
Mobile -- 4G	Download: 3 to 6 Mbps
Satellite	10 to 20 Kbps
WiMax (like Clear)	Download: 3 to 6 Mbps

South Korea	1 Gbps (2012)
Japan	Average: 93.6 Mbps (2007)
France	Average: 44.1 Mbps (2007)

¹One kilobit per second (Kbps) is 1,000 bits per second (bps). One megabit per second (Mbps) is 1,000 Kbps or 1,000,000 bps. One gigabit per second (Gbps) is 1,000 Mbps or 1,000,000 Kbps or 1,000,000,000 bps.

What are the anticipated benefits of high speed Internet? Here we provide the reader with only a brief overview of the anticipated benefits of high speed Internet given the studies presented in Table 3 are further putting in evidence some benefits. Thus, we describe in the next paragraphs three relevant examples of benefits that high speed Internet can bring: one at the environmental level, one at the social level, and one at the economic level.

First, a study realized by Fuhr and Pociask released in October 2007 by the American Consumer Institute praises the benefic impact that a widely spread use of broadband could have on the environment by cutting greenhouse gas emissions. The study focuses on the different behaviors that the use of high speed Internet allows, such as buying online, telecommuting, e-materializing, teleconferencing, videoconferencing, as well as distance learning, and converts their benefits into saving of greenhouse gas emissions by mainly cutting on energy. According to Fuhr and Pociask (2007; quoted in Labriet-Gross, 2007), using high speed Internet mainly influences the amount of travel, space and material needed when you buy, work or lean based on rather simple findings. “Indeed, instead of going to five or 6 stores to find who has a product or who has the best price, you can just search on the Internet and buy online, so it cuts back on the pollution linked to the commute”, explain these authors. As for the supply chain, it decreases the inventory, which means less storage facilities, so less need for heat, air conditioning, and lighting. For instance, Dell has increased its sales by 36 times, while its facilities space has been reduced by 4. Overall, e-commerce already cuts 37.5 million tons of CO2 emissions (and only in business to business (B2B) and business to consumers (B2C) transactions), and could save 206.3 million tons in 2017, argue Fuhr and Pociask (2007; quoted in Labriet-Gross, 2007).

Varon (2010) relates the experience of Case Western Reserve University who launched the University Circle Innovation Zone, a large project deploying gigabit fiber optic connections to residents of Cleveland’s poorest neighborhoods. Beginning with 104 homes, local institutions, including hospitals, schools, electric utilities, and public safety agencies, will use the network to deliver cutting edge services to residents. Over the next 18 months, Case Western researchers will study changes in residents’ health and other indicators of their standard of living. One project will use videoconferencing technology provided by LifeSize to enable residents with chronic conditions such as diabetes to consult with healthcare providers over high definition video. Patients will also be given devices that automatically monitor their health and transmit data to medical professionals. Broadband access could enable residents to take better care of them when they cannot visit their doctors. Other projects would provide science and math... materials to students, deliver video feeds to police, and collect data to help residents manage energy usage. Case Western’s technology and service provider partners are financing this social initiative.

And, a study conducted by Orazem (2005) measuring the impact of high speed Internet access on local economic growth suggests that it increases growth in earnings per worker, aggregate earnings and the number of firms, but it lowers the rate of growth of employment. All of these

are consistent with the presumption that high speed Internet access can lower firm costs, improve information flows with suppliers and consumers, and, at the same time, lower the need for employees specializing in sales or procurement. And all of these effects were larger in less density populated areas, then suggesting that rural areas do benefit disproportionately from high speed Internet access. A more recent study made by Majumdar (2008) is consistent with Orazem's (2005) findings concerning earnings per worker and employment, that is, he found that broadband diffusion within and between the firms over time has a positive and significant impact on wage levels, but its impact on employment is negative.

On the other hand, what are the main barriers to high speed Internet adoption? According to the Pew Internet & American Life Project (see Horrigan, 2009), the factors positively correlated with home broadband adoption (in order of importance) are: income (household income greater than \$75,000 annually); having college degree or more; parent of minor child in household); married or living with partner; and full-time employee. As for the factors negatively correlated with home broadband adoption (in order of importance), they are: having less than a high school degree; senior individual (aged of 65 or over); living in rural America; having a high school degree; and being African American (non-Hispanic).

Telecommunications industry is continually in a shift of change, alimeted by technological innovation and consumers' demand for always better and faster communication tools. High speed Internet is now an integral part of everyday life of more than a billion people. And, as the tendency is showing up, its use will be still increasing in the future. Thus, this technology has and will continue to have major social and economic impacts. Individual adoption of technology has been studied extensively in the workplace, but far less attention has been paid to adoption of technology in household (Brown & Venkatesh, 2005). So, few studies have been conducted until now to verify satisfaction of household people using high speed Internet. It is therefore crucial to more deeply examine the determining factors in satisfaction of using high speed Internet by people in household. This is the aim of the present study. The related literature on the actual research area of high speed Internet is summarized in Table 3.

As we can see in the summary of literature related to high speed Internet presented in Table 3, very few studies until now examined the determining factors in satisfaction of using high speed Internet by people in household. Thus, the present study brings an important contribution to fill this gap given it allows a better understanding of the impacts of high speed Internet usage into people's everyday life. It focuses on the following research question: What are the determining factors in satisfaction of using high speed Internet by people in household?

Table 3. Related Literature Survey

<i>Research Area</i>	<i>References</i>
High speed Internet social impact and economic growth.	Orazem (2005) Selouani & Hamam (2007) Anderson (2008)
High speed Internet and wages and employment.	Majumdar (2008)
High speed Internet and health.	Dumitru et al. (2007) Rains (2008)

High speed Internet and regulation.	Cambini & Jiang (2009) Howard & Mahazeri (2009)
High speed Internet migration, implementation, and support.	Ida & Sakahira (2008) Platt et al. (2010)
High speed Internet adoption and use.	Perry et al. (1998) Matthews & Schrum (2003) Middleton & Ellison (2006) Dumitru et al. (2007) Windhausen Jr. (2008) Horrigan (2009) Howard & Mahazeri (2009) Al-Omoush & Shaqrah (2010) Helsper (2010) Rosston et al. (2010)
High speed Internet (e.g., ISP) user satisfaction.	Tao et al. (2009)

The paper builds on a framework suggested by Fillion (2004) in the conduct of hypothetico-deductive scientific research in organizational sciences, and it is structured as follows: first, the theoretical development of the study is presented; second, the methodology followed to conduct the study is described; finally, the results of the study are reported and discussed.

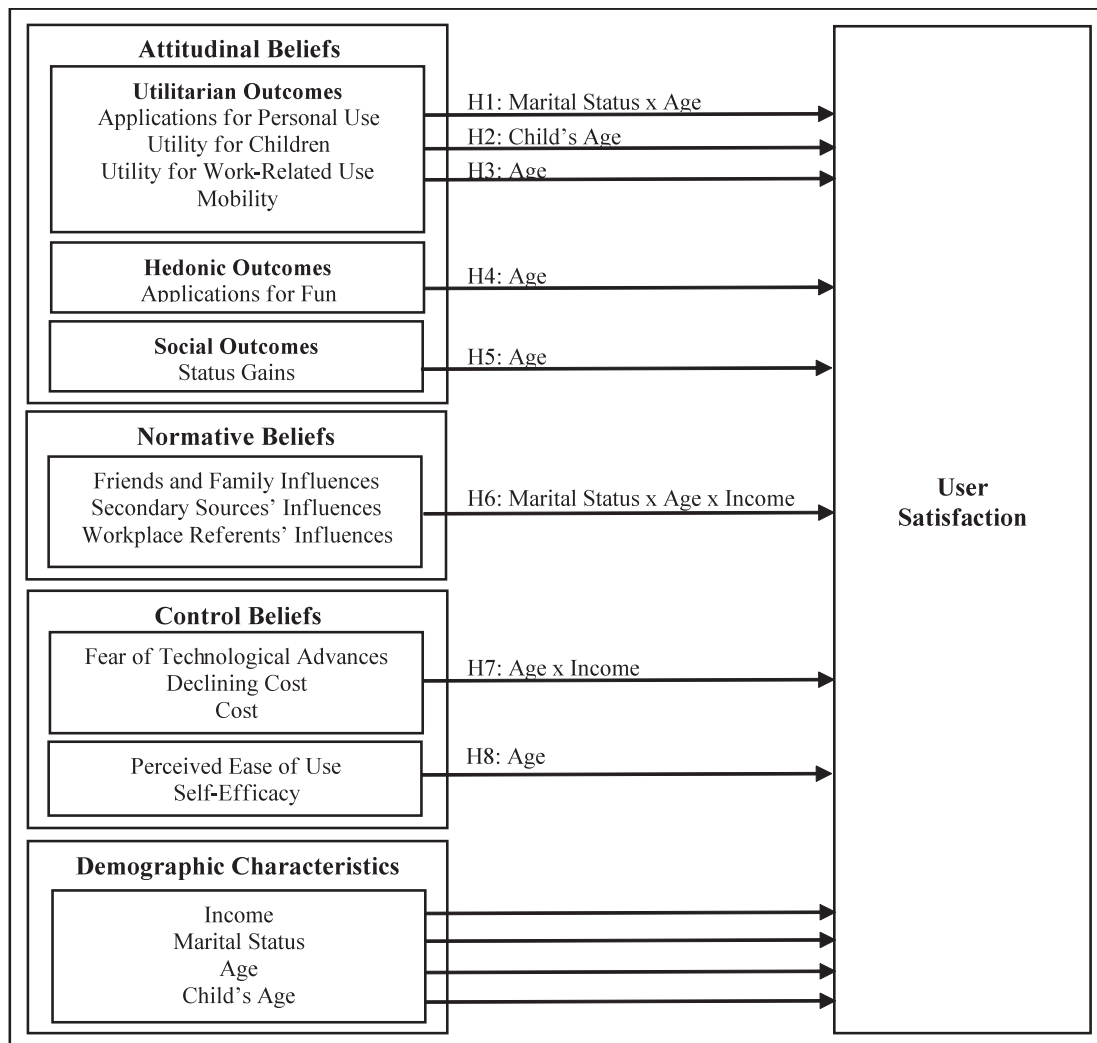
Theoretical Development

This study is based on the theoretical foundations developed by Venkatesh and Brown (2001) to investigate the factors driving personal computer (PC) adoption in American homes as well as those developed by Brown and Venkatesh (2005) in order to verify the determining factors in intention to adopt a PC in household by American people. In fact, Brown and Venkatesh (2005) performed the first quantitative test of the recently developed model of adoption of technology in households (MATH) and they proposed and tested a theoretical extension of MATH integrating some demographic characteristics varying across different life cycle stages as moderating variables. And Brown et al. (2006) tested the same integrated model in the context of PC use. As pointed out by Brown et al. (2006), even though the technology of interest in MATH is PC, the model is expected to generalize to other information technology (IT) products and systems in the household context. Also, with the exception of behavioral intention (we included user satisfaction instead behavioral intention given people investigated in this study already have high speed Internet access), all the variables proposed and tested by Brown and Venkatesh (2005) are used in this study. And we added a new variable, mobility, in order to verify whether or not it is a factor of satisfaction of household people using high speed Internet. The resulting theoretical research model is depicted in Figure 1.

Figure 1 shows that Brown and Venkatesh (2005) integrated MATH and Household Life Cycle in the following way. MATH presents five attitudinal beliefs grouped into three sets of outcomes: *utilitarian*, *hedonic*, and *social*. Utilitarian beliefs are most consistent with those found in the workplace and can be divided into beliefs related to *personal use*, *children*, and *work* (we added beliefs related to *mobility*). The extension of MATH suggested and tested by Brown and Venkatesh (2005) presents three normative beliefs: *influence of friends and family*, *secondary sources*, and *workplace referents*. As for control beliefs, they are represented in MATH by five factors: *fear of technological advances*, *declining cost*, *cost*,

perceived ease of use, and *self-efficacy*. And, according to Brown and Venkatesh (2005), integrating MATH with a life cycle view, including *income*, *age*, *child's age*, and *marital status*, allows to provide a richer explanation of household PC adoption (household high speed Internet usage in this study) than those provided by MATH alone. Finally, as shown in Figure 1, the dependant variable of the theoretical research model developed is related to *user satisfaction* (satisfaction in the use of high speed Internet by people in household). All of the variables integrated in the theoretical research model depicted in Figure 1 are defined in Table 4.

Figure 1. Theoretical Research Model



We can see in Table 4 that the definitions of MATH variables integrated in the theoretical research model proposed in Figure 1 are, in the whole, adapted from the theoretical foundations developed by Venkatesh and Brown (2001) to investigate the factors driving PC adoption in American homes. As for the definitions of the variables related to the household life cycle, they were taken from Danko and Schaninger (1990) as well as Wagner and Hanna (1983), respectively. And the definition of the new independent variable that we added to the

model is from our own. In fact, we defined this variable in accordance with which we wanted to measure regarding mobility before developing and validating items that measure the variable on the basis of the definition formulated.

Table 4. Variables and Definitions

<i>Beliefs and Characteristics</i>	<i>Variables</i>	<i>Definitions</i>
<i>Dependent Variable</i>	User Satisfaction	According to Cyert and March (1963, p. 126), an information system or information technology which meets the needs of its user will reinforce satisfaction with that system or technology. If the system or technology does not provide the needed information or service, the user will become dissatisfied and look elsewhere.
<i>Attitudinal Beliefs (independent variables)</i>	Applications for Personal Use	The extent to which using high speed Internet enhances the effectiveness of household activities (Venkatesh & Brown, 2001).
	Utility for Children	The extent to which using high speed Internet enhances the children's effectiveness in their activities (Venkatesh & Brown, 2001).
	Utility for Work-Related Use	The extent to which using high speed Internet enhances the effectiveness of performing work-related activities (Venkatesh & Brown, 2001).
	Mobility	The extent to which high speed Internet allows using only this technology to perform all personal and professional activities.
	Applications for Fun	The pleasure derived from high speed Internet use (Venkatesh & Brown, 2001). These are specific to high speed Internet usage, rather than general traits (Brown & Venkatesh, 2005; see Webster & Martocchio, 1992, 1993).
	Status Gains	The increase in prestige that coincides with the purchase of high speed Internet access for home use (Venkatesh & Brown, 2001).
<i>Normative Beliefs (independent variables)</i>	Friends and Family Influences	"The extent to which the members of a social network influence one another's behavior" (Venkatesh & Brown, 2001, p. 82). In this case, the members are friends and family (Brown & Venkatesh, 2005).
	Secondary Sources' Influences	The extent to which information from TV, newspaper, and other secondary sources influences behavior (Venkatesh & Brown, 2001).
	Workplace Referents' Influences	The extent to which coworkers influence behavior (Brown & Venkatesh, 2005; see Taylor & Todd, 1995).
<i>Control Beliefs (independent variables)</i>	Fear of Technological Advances	The extent to which rapidly changing technology is associated with fear of obsolescence or apprehension regarding high speed Internet access purchase (Venkatesh & Brown, 2001).
	Declining Cost	The extent to which the cost of high speed Internet access is

		decreasing in such a way that it inhibits adoption (Venkatesh & Brown, 2001).
	Cost	The extent to which the current cost of high speed Internet access is too high (Venkatesh & Brown, 2001).
	Perceived Ease of Use	The degree to which using high speed Internet is free from effort (Davis, 1989; see also Venkatesh & Brown, 2001).
	Self-Efficacy (or Requisite Knowledge)	The individual's belief that he/she has the knowledge necessary to use high speed Internet. This is closely tied to computer self-efficacy (Compeau & Higgins, 1995a, 1995b; see also Venkatesh & Brown, 2001).
<i>Life Cycle Characteristics (moderator variables)</i>	Income	The individual's year gross income (see Wagner & Hanna, 1983).
	Marital Status	The individual's family status (married, single, divorced, widowed, etc.) (see Danko & Schaninger, 1990).
	Age	The individual's age (see Danko & Schaninger, 1990). In this case, age is calculated from the individual's birth date.
	Child's Age	The age of the individual's youngest child (see Danko & Schaninger, 1990). In this case, age is represented by a numeral.

In the remainder of the section, we develop eight research hypotheses (H1-H8) related to the model suggested in Figure 1.

H1: Marital status and age will moderate the relationship between applications for personal use and satisfaction of using high speed Internet at home.

H2: Child's age will moderate the relationship between utility for children and satisfaction of using high speed Internet at home.

H3: Age will moderate the relationship between utility for work-related use and satisfaction of using high speed Internet at home.

H4: Age will moderate the relationship between applications for fun and satisfaction of using high speed Internet at home.

H5: Age will moderate the relationship between status gains and satisfaction of using high speed Internet at home.

H6: Age, marital status, and income will moderate the relationship between the normative beliefs ((a) friends and family influences; (b) secondary sources' influences; and (c) workplace referents' influences) and satisfaction of using high speed Internet at home.

H7: Age and income will moderate the relationship between the external control beliefs ((a) fear of technological advances; (b) declining cost; and (c) cost) and satisfaction of using high speed Internet at home.

H8: Age will moderate the relationship between the internal control beliefs ((a) perceived ease of use; and (b) self-efficacy) and satisfaction of using high speed Internet at home.

In the next section of the paper, the methodology followed to conduct the study is described.

Methodology

The study was designed to gather information concerning high speed Internet satisfaction in Atlantic Canadian households. Indeed, the focus of the study is on individuals who have high speed Internet access at home. We conducted a telephone survey research among individuals of a large area in Atlantic Canada. In this section, we describe the instrument development and validation, the sample and data collection, as well as the data analysis process.

Instrument Development and Validation

To conduct the study, we used the survey instrument developed and validated by Brown and Venkatesh (2005) to which we added two new scales, the first one measuring another dimension in satisfaction of using high speed Internet by people in household, that is, mobility, and the last one measuring user satisfaction as such. The survey instrument was then translated in French (a large part of the population in Atlantic Canada is speaking French) and both the French and English versions were evaluated by peers. This review assessed face and content validity (see Straub, 1989). As a result, few changes were made to reword items and, in some cases, to drop items that were possibly ambiguous, consistent with Moore and Benbasat's (1991) as well as DeVellis's (2003) recommendations for scale development. Subsequent to this, we distributed the survey instrument to a group of MBA students for evaluation. Once again, minor wording changes were made. Finally, we performed some adjustments to the format and appearance of the instrument, as suggested by both peers and MBA students, though these minor changes had not a great importance here given the survey was administered using the telephone. As the instrument was already validated by Brown and Venkatesh (2005) and showed to be of a great reliability, that we used the scale developed by Hobbs and Osburn (1989) and validated in their study as well as in several other studies to measure user satisfaction, and that we added only few items to measure the new variable mobility, then we have not performed a pilot-test with a small sample. The evaluations by both peers and MBA students were giving us some confidence that we could proceed with a large-scale data collection.

Sample and Data Collection

First, in this study, we chose to survey people in household over 18 years taken from a large area in Atlantic Canada who have high speed Internet access. To do this, undergraduate and graduate students studying at our faculty were hired to collect data using the telephone. A telephone was then installed in an office of the faculty, and students, one at a time over a 3- to 4-hour period, were asking people over the telephone to answer our survey. And in order to get a diversified sample (e.g., students, retired people, people not working, people working at home, and people working in enterprises), data were collected from 9 a.m. to 9 p.m. Monday through Friday over a 5-week period. Using the telephone directory of the large area in Atlantic Canada chosen for the study, students were randomly selecting people and asking them over the telephone to answer our survey. The sample in the present study is therefore a randomized sample, which is largely valued in the scientific world given the high level of

generalization of the results got from such a sample. Once an individual had the necessary characteristics to answer the survey and was accepting to answer it, the student was there to guide him/her to rate each item of the survey on a seven points Likert-type scale (1: strongly disagree ... 7: strongly agree). In addition, the respondent was asked to answer some demographic questions. Finally, to further increase the response rate of the study, each respondent completing the survey had the possibility to win one of the 30 Tim Hortons \$10 gift certificates which were drawn at the end of the data collection. To that end, the phone number of each respondent was put in a box for the drawing. Following this data collection process, 322 people in household answered our survey over a 5-week period.

Data Analysis Process

The data analysis of the study was performed using a structural equation modeling software, that is, Partial Least Squares (PLS-Graph 3.0). Using PLS, data have no need to follow a normal distribution and it can easily deal with small samples. In addition, PLS is appropriate when the objective is a causal predictive test instead of the test of a whole theory (Barclay et al., 1995; Chin, 1998) as it is the case in this study. To ensure the stability of the model developed to test the research hypotheses, we used the PLS bootstrap resampling procedure (the interested reader is referred to a more detailed exposition of bootstrapping (see Chin, 1998; Efron & Tibshirani, 1993)) with an iteration of 100 sub-sample extracted from the initial sample (322 Atlantic Canadian people). Some analyses were also performed using the Statistical Package for the Social Sciences software (SPSS 13.5). The results follow.

Results

In this section of the paper, the results of the study are reported. First, we begin to present some characteristics of the participants. Then we validate the PLS model developed to test the research hypotheses. Finally, we describe the results got from PLS analyses to test the research hypotheses.

Participants

The participants in this study were relatively aged, with a mean of 40 years and a standard deviation of 13.7 years. These statistics on the age of the participants are, in fact, consistent with the growing old population phenomenon. Near from two third of the participants were female (62.7%). Near from 80% of the participants were married (52.1%) or single (26.8%). The gross yearly income of the respondents in the study was in the range of \$0 to \$60,000. Indeed, 80.9% of the respondents were winning between \$0 and \$60,000, and, from this percentage, 47.3% were winning between \$30,000 and \$60,000. And 5.3% of the respondents were winning \$100,000 or over. Concerning the level of education, 20.3% of the participants in the study got a high-school diploma, 28.3% obtained a college degree, 37.3% completed a baccalaureate, and 10.3% got a master. Only 2.9% of the participants got a doctorate, which is relatively consistent with the whole population in general. Finally, the respondents in our study were mainly full-time employees (46.8%), part-time employees (14.6%), retired people (13.3%), self employed (8.9%), unemployed (7.6%), and students (5.4%).

Validation of the PLS Model to Test Hypotheses

First, to ensure the reliability of a construct or a variable using PLS, one must verify the three following properties: individual item reliability, internal consistency, and discriminant validity (for more details, see Yoo and Alavi, 2001).

To verify individual item reliability, a confirmatory factor analysis (CFA) was performed on independent and dependent variables of the theoretical research model. A single iteration of the CFA was necessary given all loadings of the variables were superior to 0.50 and then none item was withdrawn nor transferred in another variable in which the loading would have been higher. Indeed, in the whole, items had high loadings, which suppose a high level of internal consistency of their corresponding variables. In addition, loadings of each variable were superior to cross-loadings with other variables of the model. Hence the first criterion of discriminant validity was satisfied.

And to get composite reliability indexes and average variance extracted (AVE) in order to satisfy the second criterion of discriminant validity and to verify internal consistency of the variables, we used PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (322 Atlantic Canadian people). The results are partially (for a matter of space) presented in Table 5.

Table 5. Means, Standard Deviations, and Composite Reliability Indexes of Variables

<i>Variables</i>	<i>Means</i>	<i>SD</i>	<i>Reliability Indexes</i>
Applications for Personal Use	5.17	1.87	0.82
Utility for Children	3.07	3.00	0.99
Utility for Work-Related Use	4.47	2.63	0.89
Mobility	4.70	2.07	0.89
Applications for Fun	4.83	1.95	0.86
Status Gains	2.88	2.08	0.94
Friends and Family Influences	3.75	2.48	0.93
Secondary Sources' Influences	3.73	2.20	0.85
Workplace Referents' Influences	3.15	3.00	0.91
Fear of Technological Advances	2.87	2.07	0.87
Declining Cost	3.93	2.07	0.86
Cost	4.77	1.93	0.74
Perceived Ease of Use	5.73	1.45	0.83
Self-Efficacy	6.37	1.05	0.93
Income ^a	NA	NA	NA
Marital Status ^b	NA	NA	NA
Age ^c	40.00	13.70	NA
Child's Age ^d	14.91	8.89	NA
User Satisfaction	5.72	1.38	0.90

^aThis variable was coded as an ordinal variable. It was measured in terms of non quantified distinct ordered

categories. ^bThis variable was coded as a nominal variable. It was measured in terms of non quantified distinct categories. ^cThis variable was coded as a continuous variable. It was measured using the respondents' birth date.

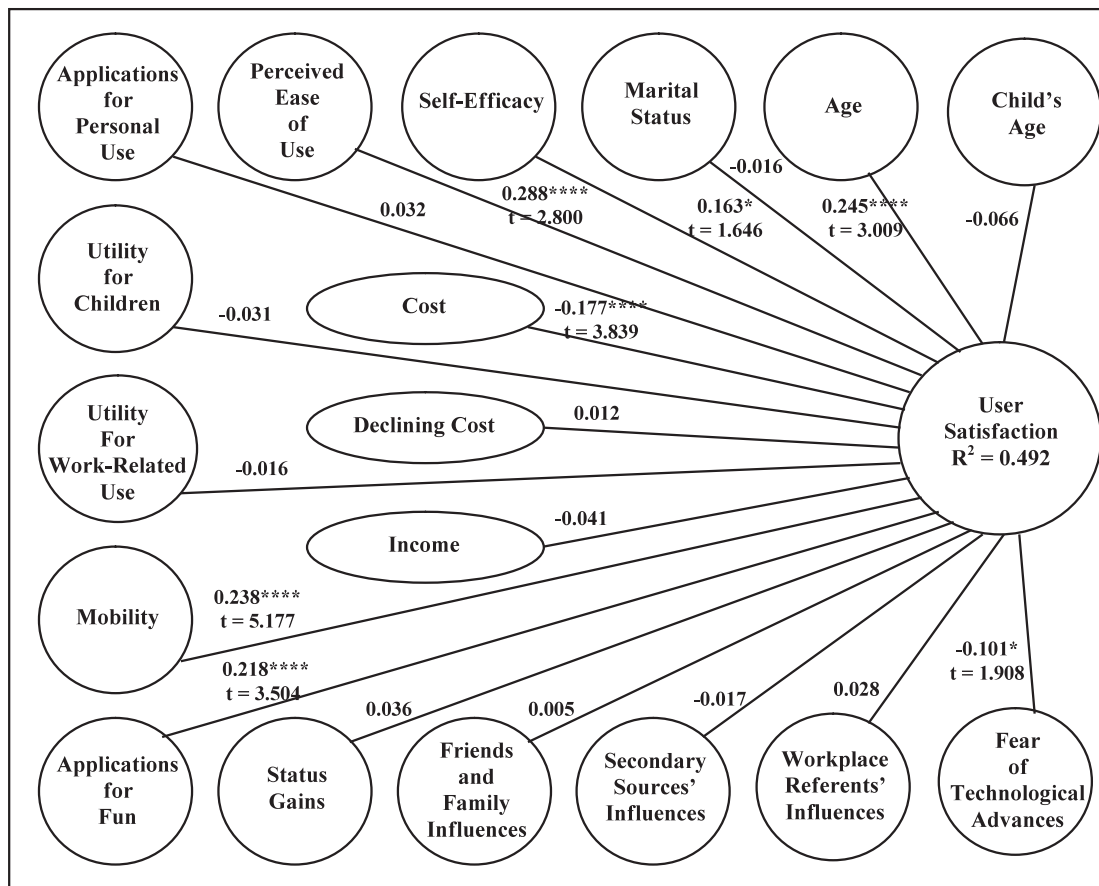
^dThis variable was coded as a numeral. It was measured using the age of the respondents' youngest child.

PLS analysis indicated that all square roots of AVE were higher than the correlations with other variables of the model. In other words, each variable shares more variance with its measures than it shares with other variables of the model. Consequently, discriminant validity is verified. Finally, as supposed previously, we can see in Table 5 that PLS analysis showed high composite reliability indexes for all variables of the theoretical research model. The variables have therefore a high internal consistency, with composite reliability indexes ranging from 0.74 to 0.99.

Hypothesis Testing

First, to get the significant variables in the study and the percentage of variance explained (R^2 coefficient) by all the variables of the theoretical research model, we developed a PLS model similar to those of Fillion (2005), Fillion and Le Dinh (2008), Fillion et al. (2010a), Fillion and Booto Ekionea (2010b), and Yoo and Alavi (2001). And to ensure the stability of the model, we used the PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (322 Atlantic Canadian people). The PLS model is depicted in Figure 2.

Figure 2. PLS Model to Get Significant Variables and Percentage of Variance Explained



* $p < 0.05$; **** $p < 0.001$.

As shown in Figure 2, all the variables of our theoretical research model, used as independent variables, are explaining 49.2% of the variance on the dependant variable user satisfaction. And about half of these variables are significant, that is, they are determining factors in satisfaction of using high speed Internet by people in household. More specifically, the five more significant variables (in order of significance) are mobility ($t = 5.177$, $\beta = 0.238$, $p < 0.001$), cost ($t = 3.839$, $\beta = -0.177$, $p < 0.001$), applications for fun ($t = 3.504$, $\beta = 0.218$, $p < 0.001$), age ($t = 3.009$, $\beta = 0.245$, $p < 0.001$), and perceived ease of use ($t = 2.800$, $\beta = 0.288$, $p < 0.001$). And two other variables are significant at the level of significance required in this study, that is, $p \leq 0.05$. They are fear of technological advances ($t = 1.908$, $\beta = -0.101$, $p < 0.05$) as well as self-efficacy ($t = 1.646$, $\beta = 0.163$, $p < 0.05$). As we can see in Figure 2, our new variable mobility is by far the more significant variable in the global PLS model. So, in this study, the fact that high speed Internet allows using only this technology to perform all personal and professional activities is by far the more satisfying factor for Atlantic Canadian people when they choose to get access to high speed Internet from Internet services providers (ISP).

Finally, to measure interaction effect of moderator variables (the life cycle stage characteristics: income (I), marital status (MS), age (A), and child's age (CA)) in order to verify hypotheses 1 through 8, we used the PLS procedure proposed by Chin et al. (2003) (see the paper for more details). On the other hand, in a review of 26 papers assessing interaction effect of moderator variables published between 1991 and 2000 in information systems (IS)

journals, Carte and Russell (2003) found nine errors frequently committed by researchers when they estimate such an effect, and provided solutions (see their paper for more details). We tried to avoid these nine errors in applying their solutions to test hypotheses 1 through 8. Indeed, among others, in the verification of hypotheses 1 through 8 that follows, interaction effect of a moderator variable is significant if, and only if, the path between the latent variable (the multiplication of items of independent and moderator variables forming interaction effect) and the dependent variable is significant, as well as if the change in R^2 coefficient (the difference between the R^2 calculated before the addition of interaction effect and those calculated after the addition of interaction effect, that is, ΔR^2 (named delta R^2)) is greater than 0.

For a matter of space, given that the test of hypotheses 1 through 8 required the development of several PLS structural equation models (two models per hypothesis, that is, 16 models), we summarize PLS analyses to test each hypothesis. And, as for the PLS model developed to get the significant variables in the study and the percentage of variance explained by all the variables of the theoretical research model previously, for each PLS model developed, we used the PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (322 Atlantic Canadian people) to ensure the stability of the model.

Concerning hypothesis 1 related to the independent variable applications for personal use (APU), the path from the latent variable $APU*MS*A$ to the dependent variable user satisfaction is not significant ($t = 0.882$, $\beta = -0.181$), but there is a substantial change in R^2 ($\Delta R^2 = 0.006$). So, contrary to our expectations, the moderator variables marital status and age have not an influence on the relationship between applications for personal use and satisfaction of using high speed Internet by people in household. Hypothesis 1 is therefore not supported. The scenario is similar for hypothesis 2 related to the independent variable utility for children (UC). The path from the latent variable $UC*CA$ to the dependent variable user satisfaction is not significant ($t = 0.219$, $\beta = 0.039$) and there is no change in R^2 ($\Delta R^2 = 0.000$). Also, contrary to what we expected, the moderator variable child's age has not an influence on the relationship between utility for children and satisfaction of using high speed Internet by people in household. As a result, hypothesis 2 is not supported. For hypothesis 3 related to the independent variable utility for work-related use (UWRU), the path from the latent variable $UWRU*A$ to the dependent variable user satisfaction is significant ($t = 1.646$, $\beta = 0.457$, $p < 0.05$) and there is a huge change in R^2 ($\Delta R^2 = 0.015$). Thus, as we expected, the moderator variable age has an influence on the relationship between utility for work-related use and satisfaction of using high speed Internet by people in household. Hypothesis 3 is therefore supported. The scenario is similar for hypothesis 4 related to the independent variable applications for fun (AF), the path from the latent variable $AF*A$ to the dependent variable user satisfaction is significant ($t = 1.695$, $\beta = -0.334$, $p < 0.05$) and there is a huge change in R^2 ($\Delta R^2 = 0.014$). Thus, as we expected, the moderator variable age has an influence on the relationship between applications for fun and satisfaction of using high speed Internet by people in household. As a result, hypothesis 4 is also supported. And the scenario is still similar regarding hypothesis 5 related to the independent variable status gains (SG), the path from the latent variable $SG*A$ to the dependent variable user satisfaction is significant ($t = 1.712$, $\beta = -0.339$, $p < 0.05$) and there is a huge change in R^2 ($\Delta R^2 = 0.011$). Thus, as we expected, the moderator variable age has an influence on the relationship between status gains and satisfaction of using high speed Internet by people in household. Consequently, hypothesis 5 is also supported.

In the case of hypothesis 6a related to the independent variable friends and family influences (FFI), the path from the latent variable $FFI*MS*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.894$, $\beta = -0.122$), but there is a change in R^2 ($\Delta R^2 = 0.004$). Also, contrary to our expectations, the moderator variables marital status, age, and income have not an influence on the relationship between friends and family influences and satisfaction of using high speed Internet by people in household. Hypothesis 6a is then not supported. The scenario is similar for hypothesis 6b related to the independent variable secondary sources' influences (SSI), the path from the latent variable $SSI*MS*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.263$, $\beta = 0.041$) and there is no change in R^2 ($\Delta R^2 = 0.000$). Contrary to what we expected, the moderator variables marital status, age, and income have not an influence on the relationship between secondary sources' influences and satisfaction of using high speed Internet by people in household. As a result, hypothesis 6b is not supported. The scenario is also similar concerning hypothesis 6c related to the independent variable workplace referents' influences (WRI), the path from the latent variable $WRI*MS*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.327$, $\beta = 0.042$) and there is no change in R^2 ($\Delta R^2 = 0.000$). Contrary to our expectations, the moderator variables marital status, age, and income have not an influence on the relationship between workplace referents' influences and satisfaction of using high speed Internet by people in household. Hypothesis 6c is therefore not supported.

As for hypothesis 7a related to the independent variable fear of technological advances (FTA), the path from the latent variable $FTA*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.888$, $\beta = -0.109$), but there is a change in R^2 ($\Delta R^2 = 0.003$). Contrary to our expectations, the moderator variables age and income have not an influence on the relationship between fear of technological advances and satisfaction of using high speed Internet by people in household. Hypothesis 7a is therefore not supported. The scenario is similar for hypothesis 7b related to the independent variable declining cost (DC), the path from the latent variable $DC*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.434$, $\beta = 0.068$) and there is no change in R^2 ($\Delta R^2 = 0.000$). Also, contrary to what we expected, the moderator variables age and income have not an influence on the relationship between declining cost and satisfaction of using high speed Internet by people in household. Consequently, hypothesis 7b is not supported. And the scenario is also similar for hypothesis 7c related to the independent variable cost (C), the path from the latent variable $C*A*I$ to the dependent variable user satisfaction is not significant ($t = 0.021$, $\beta = 0.003$) and there is no change in R^2 ($\Delta R^2 = 0.000$). Thus, contrary to our expectations, the moderator variables age and income have not an influence on the relationship between cost and satisfaction of using high speed Internet by people in household. As a result, hypothesis 7c is not supported.

Finally, concerning hypothesis 8a related to the independent variable perceived ease of use (PEU), the path from the latent variable $PEU*A$ to the dependent variable user satisfaction is not significant ($t = 0.801$, $\beta = -0.324$), but there is a change in R^2 ($\Delta R^2 = 0.003$). Thus, contrary to our expectations, the moderator variable age has not an influence on the relationship between perceived ease of use and satisfaction of using high speed Internet by people in household. As a result, hypothesis 8a is not supported. The scenario is different for hypothesis 8b related to the independent variable self-efficacy (SE), the path from the latent variable $SE*A$ to the dependent variable user satisfaction is significant ($t = 2.412$, $\beta = -1.286$, $p < 0.01$) and there is a huge change in R^2 ($\Delta R^2 = 0.033$). So, as we expected, the moderator variable age has an influence on the relationship between self-efficacy and

satisfaction of using high speed Internet by people in household. Consequently, hypothesis 8b is supported. Table 6 presents a summary of the test of hypotheses.

Table 6. Summary of the Test of Hypotheses

<i>Hypotheses</i>	<i>Results</i>	<i>Software (beta sig.)</i>
H1- Marital status and age will moderate the relationship between applications for personal use and satisfaction of using high speed Internet at home.	Not supported	PLS (-0.181)
H2- Child's age will moderate the relationship between utility for children and satisfaction of using high speed Internet at home.	Not supported	PLS (0.039)
H3- Age will moderate the relationship between utility for work-related use and satisfaction of using high speed Internet at home.	Supported	PLS (0.457*)
H4- Age will moderate the relationship between applications for fun and satisfaction of using high speed Internet at home.	Supported	PLS (-0.334*)
H5- Age will moderate the relationship between status gains and satisfaction of using high speed Internet at home.	Supported	PLS (-0.339*)
H6- Age, marital status, and income will moderate the relationship between the normative beliefs ((a) friends and family influences; (b) secondary sources' influences; and (c) workplace referents' influences) and satisfaction of using high speed Internet at home.	a- Not supported b- Not supported c- Not supported	PLS (-0.122) PLS (0.041) PLS (0.042)
H7- Age and income will moderate the relationship between the external control beliefs ((a) fear of technological advances; (b) declining cost; and (c) cost) and satisfaction of using high speed Internet at home.	a- Not supported b- Not supported c- Not supported	PLS (-0.109) PLS (0.068) PLS (0.003)
H8- Age will moderate the relationship between the internal control beliefs ((a) perceived ease of use; and (b) self-efficacy) and satisfaction of using high speed Internet at home.	a- Not supported b- Supported	PLS (-0.324) PLS (-1.286**)

*p < 0.05; **p < 0.01.

In summary, as shown in Table 6, four hypotheses have been supported in our study, that is, H3, H4, H5, and H8b. Thus, the moderator variable age had several moderating effects in this study. As for moderator variables marital status, income, and child's age, these ones had not a significant moderating effect on the relations between the independent and dependent variables involved. Hence hypotheses H1, H2, H6a, H6b, H6c, H7a, H7b, and H7c were not supported. And the moderator variable age had not a significant moderating effect on the relation between perceived ease of use and satisfaction of using high speed Internet at home. Hence hypothesis H8a was not supported.

In the next and last section of the paper, we discuss about the more important findings of the study, the theoretical and practical implications, the limitations, and the future directions.

Discussion and Conclusions

This last section is devoted to a discussion about the findings of the study and some conclusions. First, to support our discussion and conclusions, we provide the reader with a more detailed view of the PLS structural equation model developed to get the significant variables in the study, including the percentages of variance explained of variables (see Table 7).

As shown in Table 7 (and Figure 2), the eighteen independent variables examined in the study explained 49.2 percent ($R^2 = 0.492$) of the variance in satisfaction of using high speed Internet at home. And we can also see in Table 7 that the seven variables who showed to be significant (see also the significant beta path coefficients in Figure 2), that is, mobility, cost, applications for fun, age, perceived ease of use, fear of technological advances, and self-efficacy explained alone 45.9 percent of the variance in satisfaction of using high speed Internet at home. Thus, these seven variables are assuredly very important factors to take into account in future studies on high speed Internet and on the part of high speed Internet providers, and more particularly self-efficacy and perceived ease of use which explained alone 33 percent of this variance (see Table 7). It is very interesting and surprising here to see that the new variable that we added to the Brown and Venkatesh's (2005) theoretical research model, that is mobility, showed to be the more significant ($t = 5.177$, $\beta = 0.238$, $p < 0.001$; see Table 7) in satisfaction of using high speed Internet by people in household. Indeed, the present study showed that people are, to some extent, using high speed Internet for a matter of mobility (e.g., high speed Internet provides them with the possibility to use only this technology to perform all their personal and professional activities). So, here is a new variable that we can now assuredly include in the integrated research model of MATH and household life cycle characteristics suggested by Brown and Venkatesh (2005) as well as Brown et al. (2006) to test in future studies. Indeed, we included this new variable mobility to the integrated model of MATH and household life cycle characteristics in several different studies (see Fillion & Berthelot, 2007; Fillion & Le Dinh, 2008; Fillion & Booto Ekionea, 2010b) and it always showed a very significant effect on the dependent variables involved. Of course, its inclusion in the integrated model will depend on its relevance to the technologies examined in the studies. For example, mobility can be included in studies on mobile phone, high speed Internet, or PC, but it cannot be integrated in studies on e-government services, e-learning, or course management software. On the practical point of view, this new variable mobility can be included in the sales marketing plan of high speed Internet providers.

Table 7. Beta Path Coefficients, T-Values, and Percentages of Variance Explained of Variables

<i>Variables</i>	<i>Beta Coefficients</i>	<i>t-values (one-tail)</i>	<i>R²</i>
Applications for Personal Use	0.032	0.566	0.001
Utility for Children	-0.031	0.729	0.001
Utility for Work-Related Use	-0.016	0.317	0.000
Mobility	0.238****	5.177	0.037
Applications for Fun	0.218****	3.504	0.047
Status Gains	0.036	0.823	0.004

Friends and Family Influences	0.005	0.117	0.004
Secondary Sources' Influences	-0.017	0.380	0.005
Workplace Referents' Influences	0.028	0.588	0.002
Fear of Technological Advances	-0.101*	1.908	0.003
Declining Cost	0.012	0.258	0.005
Cost	-0.177****	3.839	0.038
Perceived Ease of Use	0.288****	2.800	0.081
Self-Efficacy	0.163*	1.646	0.249
Income	-0.041	0.819	0.006
Marital Status	-0.016	0.300	0.000
Age	0.245****	3.009	0.004
Child's Age	-0.066	0.903	0.005

*p < 0.05; ****p < 0.001.

In the large-scale study in which Brown and Venkatesh (2005) integrated MATH and some household life cycle characteristics (as moderating variables), the integrated model explained 74 percent of the variance in intention to adopt a PC for home use, a substantial increase of 24 percent over baseline MATH that explained 50 percent of the variance. In the present study, we used the integrated model proposed by Brown and Venkatesh (2005). We also added a new independent variable to the model, that is, mobility. And we also used the household life cycle variables as moderating variables in our research model as did Brown and Venkatesh (2005). Finally, as we investigated the perceptions of people already using high speed Internet at home instead of those having the intention to adopt high speed Internet, as did Brown and Venkatesh (2005) for the PC, then we used the dependent variable user satisfaction instead of behavioral intention. And the model explained 49.2 percent of the variance in satisfaction of using high speed Internet by people in household (see Table 7 and Figure 2). Thus, in this study, using a different dependent variable than did Brown and Venkatesh (2005), that is user satisfaction instead of behavioral intention, our research model explained the same percentage of variance than those explained by MATH alone (e.g., without the household life cycle characteristics and using behavioral intention as dependent variable).

Further, in a previous study in which we investigated the intention to buy a mobile phone by people in household (see Fillion & Berthelot, 2007), we also used the theoretical research model suggested by Brown and Venkatesh (2005) to which we added the same independent variable mobility than we included in the present study in which we investigated satisfaction of using high speed Internet at home. And our model explained the same percentage of variance in intention to buy a mobile phone than in the present study in satisfaction of using high speed Internet, that is, 50 percent. According to this finding, we can see that the variable user satisfaction is as much appropriate as dependent variable in the research model proposed by Brown and Venkatesh (2005) than is behavioral intention. And this finding is also consistent with what is argued by Brown et al. (2006), that is, the model is expected to generalize to other IT products and systems in the household context. However, when the dependent variable of the model is interchanged (e.g., user satisfaction instead of behavioral intention) as did Fillion and Le Dinh (2008) as well as Fillion and Booto Ekionea (2010b) in studies examining the determining factors in the use of mobile phone, it seems that high speed

Internet (the technology involved in the present study) is a more appropriate technology to study than is mobile phone, since the amount of variance explained by the model in the present study is largely superior, that is, 50 percent comparatively to 32 percent and 35 percent respectively for the two studies on the mobile phone quoted above. Besides, it is to be noted that, in the model we used in this study, less independent variables showed to be good predictors in satisfaction of using high speed Internet by people in household than in the two studies quoted above examining the predictors in satisfaction of using mobile phone by people in household. So, this study brings several interesting findings which contribute to the technology adoption and use literature by offering key insights regarding the differences between adoption, use, and satisfaction of using technology in households.

First, our main findings regarding user satisfaction of a certain technology are consistent with those got in Tao et al.'s (2009) study in the sense that several variables have a significant effect on user satisfaction, but other variables need an improvement on some elements, for example, consumer service, transmission line and connection stability need to be improved in Tao et al.'s (2009) study, while other's usage influences, utility for work-related use and applications for personal use need to be improved in our study. Second, we found seven very important variables that seem to be good predictors in satisfaction of using high speed Internet at home, and more particularly perceived ease of use, cost, applications for fun, age, and the new variable that we added to the Brown and Venkatesh's (2005) model, mobility (see Table 7). And the fact that the moderator variable age has been found a very significant predictor (taken as independent variable) in satisfaction of using high speed Internet and a very significant influencing factor (taken as moderator variable) in all hypotheses supported in the study provides additional evidence concerning the importance of integrating household life cycle stage in research examining household technology adoption and use. These seven variables are also important to take into account by high speed Internet providers in order to improve actual services, to offer new services still better adapted to people's needs, as well as to perform their sales marketing. Third, we found that people are, to some extent, using high speed Internet for a matter of mobility given our new variable mobility showed to be the more significant in the study (see Table 7). Fourth, we found that, depending on the technology studied, the dependent variables behavioral intention and user satisfaction can be interchanged in the model proposed by Brown and Venkatesh (2005) given the amount of variance explained by the models are quite varying across technologies and dependent variables observed. The dependent variable *use behavior* proposed by Thompson et al. (1991) and the dependent variable *user satisfaction* (examined in the present study) conceptualized in the work of Cyert and March (1963), and initially developed by Ives et al. (1983), may also be further tested in future studies. Finally, we suggest the test of new independent variables which may explain a greater amount of variance in satisfaction of using high speed Internet by people in household in future studies. To that end, we recommend three new independent variables in the next paragraph.

Indeed, depending on the technology examined, it would be interesting in future studies to add a variable such as *utility for security* (in utilitarian outcomes) to the theoretical research model suggested by Brown and Venkatesh (2005) augmented with the new variable mobility that we tested in this study. This variable has been found very significant in the case of mobile phone technology in the studies conducted by Fillion and Berthelot (2007), Fillion and Le Dinh (2008), as well as Fillion and Booto Ekionea (2010b). Who knows, people might be also using high speed Internet for a matter of their own security and those of their family given this technology allows to communicate rapidly with helping people or organisms everywhere

in the world. The variable *social norm* might be also added in social outcomes. Who knows, people might be using high speed Internet just to do as everybody. And the variable *provider support* might be added in external control beliefs. People might be according a great importance to the quality of support offered by the high speed Internet provider. It would be also interesting to test the actual model in other situations and with other populations. For example, with colleagues from Brasil (University of Lavras) and Cameroon (University of Yaounde I), we are now testing the actual model with people who are using a mobile phone at home. As in this study, we used the dependent variable user satisfaction since the respondents are already using a mobile phone. The results of these studies will follow in subsequent papers. It will be interesting to see whether the results remain the same as those got from people who are using high speed Internet in household.

Regarding the limitations of this study, as pointed out by Brown and Venkatesh (2005), the primary limitation is the reliance on a single informant. It is possible that other members of the household would have provided different responses concerning the motivations of using high speed Internet at home. Future research in household use of technology should incorporate responses from multiple members of the household to truly assess the nature of household use. A second limitation of the study is that it was conducted in only one area in Atlantic Canada. If the study would have been carried out in the whole Atlantic Canada, its results would be of a higher level of generalization. But the fact that the sample of the study was a randomized sample allows a high level of generalization of its results. Another limitation of the study is the administration of the survey instrument over the telephone. Some respondents might have not very well understood some items of the survey instrument over the telephone and then provided more or less precise ratings on these items, introducing the possibility of some response bias. But the method we privileged in this study to administer the survey instrument is not an exception to the rule. Each method has its own limitations.

To conclude, much more research will be needed on the use of technology in households in order to better understand its impacts on people's daily life. The research will allow, among others, at least to minimize, if not to remove, some negative impacts of technology in people's daily life in the future and to develop new technologies still better adapted to people's needs. So, rest assured that we will continue to inquire into this new and exciting field.

Acknowledgments

The authors would sincerely like to thank professor Wynne W. Chin (University of Houston at Texas) who kindly offered to us a license of the last version of his structural equation modeling software PLS to perform the data analysis of this study.

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USING UTAUT TO IDENTIFY THE INFLUENCING FACTORS ON THE USE OF ERP SYSTEMS IN MEDIUM- TO LARGE-SIZED CANADIAN ENTERPRISES

Individual acceptance and use of new technologies has been studied extensively over the last two decades. And, as more and more organizations move from functional to process-based information technology (IT) infrastructure and that enterprise resource planning (ERP) systems are becoming one of today's most widespread IT solutions to this movement, the research literature on ERP systems has exponentially grown in recent years. Effectively, the importance of the ERP industry to the professional information systems (IS) community is further underscored by projections indicating that it will be a \$47.7 billion industry by 2011 (Jacobson et al., 2007). To study acceptance and use of ERP systems by enterprises and their employees, several models of technology adoption are used, including the Technology Acceptance Model (TAM) (Davis, 1989), its successor the TAM2 (Venkatesh & Davis, 2000), a combination of TAM2 and the model of determinants of perceived ease of use, that is TAM3 (Venkatesh & Bala, 2008), as well as the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). But, at our knowledge, acceptance and use of ERP systems has not been yet studied in medium- to large-sized Canadian enterprises. The aim of this study is then to fill this gap. Using UTAUT model, we gathered the feelings of middle managers and end-users in six medium- to large-sized enterprises from three Canadian countries in order to identify the influencing factors on their use of ERP systems. Data analysis was performed using the structural equation modeling software Partial Least Squares (PLS). The results got highlight the key role of three independent variables (facilitating conditions, anxiety, and behavioral intention) and a moderator variable (age) of UTAUT model as influencing factors on the use of ERP systems in medium- to large-sized Canadian enterprises. The independent variable social influence can also play a less significant role (at $p < 0.10$) on the use of ERP systems.

Introduction

It is now evident that information systems (IS) are used at all organizational levels to manage all activities of the enterprises, as much small- to medium-sized enterprises (SME) as medium- to large-sized enterprises. Further, since more than a decade, enterprise-wide IS has gradually been adopted by these two types of enterprises. Indeed, it stands that one of the most pervasive organizational change activities in the last decade or so has been the

implementation of enterprise-wide information technologies (IT), such as enterprise resource planning (ERP) systems, that account for 30 percent of all major change activities in organizations today (Davenport, 2000; Herold et al., 2007; Jarvenpaa & Stoddard, 1998; quoted in Morris & Venkatesh, 2010). Some estimates suggest that ERP adoption is as high as 75 percent among medium- to large-sized manufacturing enterprises (Meta Group, 2004; quoted in Morris & Venkatesh, 2010) and about 8 percent among SMEs (Raymond & Uwizeyemungu, 2007). In their comparative analysis of the factors affecting ERP system adoption between SMEs and large companies, Buonanno et al. (2005) showed that business complexity, as a composed factor, is a weak predictor of ERP adoption, whereas just company size turns out to be a very good one. In other words, according to these authors, enterprises seem not to be disregarding ERP systems as an answer to their business complexity. Unexpectedly, SMEs disregard financial constraints as the main cause for ERP system non-adoption, suggesting structural and organizational reasons as major ones. This pattern is partially different from what was observed in large organizations, argue Buonanno et al. (2005), while the first reason for not adopting an ERP system is organizational. On the other hand, Ranganathan and Brown (2006) found a positive relation between ERP system adoption and a favorable reaction on the part of investors. They also found support that ERP projects with greater functional scope (two or more modules) or greater physical scope (multiple sites) result in positive, higher shareholder returns when implementing an ERP system. And, the highest increases in returns (3.29%) are noted for ERP implementation with greater functional scope and greater physical scope.

What is an ERP system? “An ERP system combines methodologies with software and hardware components to integrate numerous critical back-office functions across a company. Made up of a series of ‘modules’, or applications that are seamlessly linked together through a common database, an ERP system enables various departments or operating units such as Accounting and Finance, Human Resources, Production, and Fulfillment and Distribution to coordinate activities, share information, and collaborate.” (Business Software, 2010, p. 2) The fact that all the modules are interconnected on a common database allows to avoid, to a large extent, if not totally eliminate, dysfunctions and data redundancy and inconsistency which represent a major and extremely costly problem for the enterprises still using individual systems connected on a series of separate databases to coordinate the activities of their different functions or units.

What are the key benefits of an ERP system? ERP systems are designed to enhance all aspects of key operations across a company’s entire back-office – from planning through execution, management, and control. They accomplish this by taking processes and functions that were previously disparate and disjointed, and seamlessly integrating and coordinating them. As a result, an ERP system can: facilitate more efficient completion of day-to-day tasks; reduce the redundant and overlapping activities that waste time and money by standardizing core procedures; eliminate data silos by creating a single, centralized repository of timely, accurate business data; enable more effective resource allocation and management; reduce overhead costs; and enhance strategic planning by allowing for more accurate assessment of needs, and enabling measurement of goals versus outcomes. (Business Software, 2010)

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The paper builds on a framework suggested by Fillion (2004) in the conduct of hypothetico-deductive scientific research in organizational sciences, and it is structured as follows: first, a literature review on the subject is presented; second, the theoretical approach which guides the study is developed; third, the methodology followed to conduct the study is described; fourth, the results of the study are reported; and the paper ends with a discussion about the findings, the theoretical and practical implications, the limitations of the study, and the future directions.

Literature Review

Since the beginning of the 2000s, we can see a great evolution in the research literature on ERP systems. This is translated by an important number of papers published (Botta-Genoulaz et al., 2005) in different scientific journals and reviews related to IT and business management. But, there is still a lot of work to do within this exciting and so important domain for the business management evolution, and especially since we have to cope with the business management globalization. So we noted in the existing literature on the subject that there is no (or very few) research related to the influencing factors on the use of ERP systems in medium- to large-sized Canadian enterprises. Thus, in this study, we will try to shed some new lights about this to the body of research on ERP systems. But, first, it is important to begin by taking a look at some existing works relevant to the present study.

Some works examined the motivations to implement an ERP system. According to Davenport (1998), there are several reasons motivating a company's director to implement an ERP system in his/her enterprise. Indeed, this type of system allows to stock data on a single repository and, for this reason, to make potential gains and to decrease the additional maintenance costs of legacy systems on computers. On the other hand, there is an effect between the customers' behavior and the manufacturing production if the sales and orders systems are not linked (Davenport, 1998). In addition, if the sales and marketing service has not a mutual relation with the financial service, then managers will take decisions based either on their intuition or on out-of-date information instead of having access at all data updates from all services or units (Davenport, 1998). Botta-Genoulaz et al. (2005), Mabert et al. (2000), and Shang and Seddon (2002) outlined some major reasons why enterprises must implement and use ERP systems. A first reason, one of the technical order, is the conversion of computer systems to cope with what has come to be known as the "Year 2000" or "Y2K" software problem (for more details, see Yourdon & Yourdon, 2000), the maintenance reduction, the elimination of repetitions in data input, and the diminution of the costs

associated to computer maintenance and the integration of applications allowing the use of all databases simultaneously. And a second reason, one of the strategic order, consists in helping the enterprise to grow, the improvement of ineffective “business plans”, the reduction of inventory costs and the elimination of delays and errors in the preparation of customers’ orders, all this in a same system and in different places. Another research has been conducted to verify the impact of ERP system implementation on operational efficiency of medium-sized enterprises (Vemuri & Palvia, 2006). These authors verified the efficiency both before and after ERP system implementation in 17 different companies of the chemical and pharmaceutical domains. The results of the research revealed that there is no clear improvement on operational efficiency at several levels, unlike what the SAP vendor declared.

Lozinsky (1998) underlined some advantages following ERP system implementation. They are: operation costs reduction, easier access to information (allowing decision-makers to take better decisions), better negotiation with customers and providers, as well as easiness to generate non-repetitive reports. Other researchers (e.g., Holland & Light, 1999; Labruyere et al., 2002; Mabert et al., 2000) have developed questionnaires in order to identify the benefits of an ERP system. They found the following: quality of information, real-time access to information, reduction of the inventory, and improvement of the productivity, cash-flows, and previsions. However, it is to be noted that these advantages are not solely linked to the new system usage, but this one has a large contribution. Velcu (2007) conducted a study involving 14 companies from Finland who are using an ERP system. Her study clearly showed that the enterprises using the ERP system considerably improved their service time in accounting tasks and they also gained the ability to react more rapidly to changes. In the same context, Zhang et al. (2005) highlighted the success factors of an ERP implementation in China. Though an ERP implementation requires clear and precise information, these authors noted that Chinese people can tolerate inexact information and that they are also reluctant to share information with third-party people. The study concluded that, if they want their ERP implementation be a success, Chinese enterprises must leave some cultural habits and adopt a more modern management style. This conclusion highlights the importance of the organizational culture as a key success factor of ERP system implementation. Bironneau and Martin (2002) identified the potential problems encountered throughout an ERP system implementation process. Their study showed that the main obstacles to an ERP system implementation are the capture, sharing, and codification of information, but also the system update.

Some studies revealed that, not only manufacturing enterprises can use ERP systems, but also other organizations such as banks. It is the case for the study performed by Fuss et al. (2007). Effectively, this study highlighted a set of advantages and limits of using ERP systems in the banks. In this study, 1000 banks present in 44 countries of the world were surveyed. Regarding the advantages, the authors noted a better use of databases, an improvement in security and availability of information, and a better adaptation to the different norms at which the banks must conform. As for the limits, the authors observed high system implementation costs and high consulting costs for the maintenance, which is generally the more expensive part for the enterprises. Furthermore, there is a lost of flexibility given the system implementation requires much efforts and the formation of employees on its usage. Thus, the replacement is difficult to perform after the implementation. There is also some dependency towards the vendors of these ERP systems (for example, SAP, Oracle, and

Microsoft), not only during the implementation process but also when the time comes for the maintenance, which is considerably limiting the liberty of the enterprises.

Other studies, such as those performed by Seddon (2005), examined the relation between the ERP system and the competitive advantage. According to the findings of this study, such a system brings a great operational efficiency. Nevertheless, the study had not revealed that an ERP system might be a source of competitive advantage. A study conducted by Dai (2008) concluded to the great implication of ERP systems on the value chain, the performance, and the level of competitive advantage of the enterprises. Caruso (2003) argues that an IS such as the ERP system is becoming very important today. This author studied the Wyeth enterprise which is a large pharmaceutical company employing 44,000 people throughout the world and making \$6.6 billion of expenses per year. Caruso’s study concluded that an ERP system might be a competitive advantage if it is well integrated in the enterprise.

After numerous years of ERP systems implementation in enterprises several successes were noted but several difficulties were also encountered, leading sometimes to failures. In fact, the failure rate of ERP systems implementation is still relatively high. Davenport (1998) points out that the two main reasons why an ERP system implementation fails are: (1) the technical complexity of the solution requires a very large expertise; and (2) there is a conflict between the technical specifications of the system and the company’s needs. From another point of view, Buckhout et al. (1999) argue that the difficulties encountered in an ERP system implementation are due to the following reasons: the enterprise did not make strategic choices to configure the system and the implementation procedures; and it is always difficult to change the employees’ work practices and management style. Finally, as Markus and Benjamin (1997) pointed out, the success of any IT in an enterprise depends first on users’ acceptance of this technology. An ERP system implementation requires an organizational intervention which is completely changing the ways of doing and the employees’ habits, argue Markus and Benjamin (1997). So the arguments evocated above show very well here how much ERP system adoption is by far more complex than any other IT (for example, email, videoconferencing, and Internet). To this effect, Holsapple et al. (2005) provide the enterprises and their employees with some guidelines to follow in order to improve the chances that the ERP system adoption be a success.

Finally, since UTAUT model is used as theoretical foundation in this study, we have inventoried a set of relevant studies conducted all around the world, which are testing UTAUT model and extensions. These studies are presented in Table 1. We compare the findings of our study with those of the studies described in Table 1 in the discussion and conclusions section of the paper.

Table 1. Relevant Literature on the Test of UTAUT Model and Extensions

<i>Studies</i>	<i>Locations</i>	<i>Technologies involved</i>	<i>Models/ extensions</i>	<i>Variables¹</i>	<i>Findings</i>
Venkatesh et al. (2003)	USA	Online meeting, database application, portfolio analyser,	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Moderator:</i> G, A, E, VU <i>Dependent:</i>	The variance in BI and UB explained by UTAUT was 70%

		proprietary accounting system		BI, UB	
Wang & Yang (2005)	Taiwan	Online stocking	UTAUT, personality traits	<p><u>Model 1</u> <i>Independent:</i> EX, C, AG, N, O <i>Mediator:</i> PE, EE, SI, FC <i>Dependent:</i> BI</p> <p><u>Model 2</u> <i>Independent:</i> PE, EE, SI, FC <i>Moderator:</i> EX, C, A, N, O, E <i>Dependent:</i> BI</p>	The variance in BI explained by UTAUT and personality traits was low in Model 1, and was 60% in Model 2
Anderson et al. (2006)	USA	Tablet PC	UTAUT	<p><i>Independent:</i> PE, EE, SI, FC, G, A, E, VU <i>Dependent:</i> UB</p>	The variance in UB explained by UTAUT was 44.6%
Pu Li & Kishore (2006)	Hong Kong	Online community Weblog systems	UTAUT, demographic characteristics	<p><i>Independent:</i> PE, EE, SI, FC <i>Demographic:</i> G, GK, SK, E, UF</p>	The scales for the four constructs in UTAUT had invariant true scores across most but not all subgroups
Sabherwal et al. (2006)	Everywhere in the world; meta-analysis of 121 studies published between 1980 and 2004	Several different technologies	Prior models of IS success (ISD, TRA, TAM, TPB, IDT, SCT), partial UTAUT	<p><i>Independent:</i> S, FC, E, T, AT, P <i>Dependent:</i> SQ, PU, US, UB</p>	The results support three of the four hypothesized relations among user-related constructs, the hypothesis about the relation between the two aspects of the context, and all five hypotheses

					about the effects of the context on user-related constructs
Al-Gahtani et al. (2007)	Saudi Arabia	Desktop computer applications	UTAUT	<i>Independent:</i> PE, EE, SN, FC <i>Moderator:</i> G, A, E <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 81.2%

Table 1. Relevant Literature on the Test of UTAUT Model and Extensions (Continued)

<i>Studies</i>	<i>Locations</i>	<i>Technologies involved</i>	<i>Models/ extensions</i>	<i>Variables¹</i>	<i>Findings</i>
Chang et al. (2007)	Taiwan	Clinical decision support systems	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 71%
Park et al. (2007)	China	Mobile technologies	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Moderator:</i> G, E, ED <i>Dependent:</i> BI, UB	Gender and education were significant moderating factors, while experience was not significant
Schaper & Pervan (2007)	Australia	Information and communication technologies (ICT)	UTAUT, generic framework for technology acceptance (Chau & Hu, 2002)	<i>Independent:</i> PE, EE, SI, FC, CO, AN, SE, AT <i>Moderator:</i> A, G, E, VU... <i>Dependent:</i> BI, UB	Several hypotheses were supported, but the amount of variance in BI and UB explained by the model was not mentioned in this paper
Seymour et al. (2007)	South Africa	ERP system	UTAUT	<i>Independent:</i> PE, EE, SI, FC, SB, PC <i>Moderator:</i> G, A, E <i>Dependent:</i> BI	<i>Relevant findings:</i> PE and EE had an influence on BI, and A moderated the relation between EE and BI
van Biljon & Kotzé (2007)	South Africa	Mobile phone	TAM, Roger's (2003)	<i>Independent:</i> PU, PEU, FC, SI, AT	DF and PF had an influence on PEU and FC,

			diffusion model, Kwon & Chidambaram's (2000) model, UTAUT	<i>Moderator:</i> DF, SEF, PF <i>Dependent:</i> BI, UB	and FC had an influence on PU, PEU and UB
Chiu & Wang (2008)	Taiwan	Web-based learning	UTAUT, expectancy-value model of achievement motivation	<i>Independent:</i> PE, EE, SI, FC, SE, A, SIS, DR, RAL, AV, UV, IV <i>Dependent:</i> BI	The variance in BI explained by UTAUT and expectancy-value model of achievement motivation was 60%
Gupta et al. (2008)	India	ICT	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Moderator:</i> G <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 28.1%
Kijsanayotin et al. (2008)	Thailand	Health IT	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Moderator:</i> E, VU <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 81%
van Dijk et al. (2008)	Netherlands	Government Internet services	UTAUT, socio-demographic, media and channel use, and government supply-of-services factors	<i>Independent:</i> PE, EE, SI, AT, A, G, ED, SDF, MCF, GSF <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 79.4%

Table 1. Relevant Literature on the Test of UTAUT Model and Extensions (Continued)

<i>Studies</i>	<i>Locations</i>	<i>Technologies involved</i>	<i>Models/ extensions</i>	<i>Variables¹</i>	<i>Findings</i>
Venkatesh et al. (2008)	USA	Web-based front-end for informational	UTAUT	<i>Independent:</i> FC, BI <i>Moderator:</i>	UTAUT explained 65%, 60%, and 60%

		and transactional systems		G, A, E <i>Dependent:</i> BE, UB (duration, frequency, intensity)	of the variance in duration, frequency, and intensity of UB respectively
Wills et al. (2008)	USA	Electronic medical records	UTAUT	<i>Independent:</i> PE, EE, SI, FC <i>Dependent:</i> BI, UB	The variance in BI and UB explained by UTAUT was 79.8%
Lu et al. (2009)	China	Instant messaging	TPB, TAM, UTAUT	<i>Independent:</i> PU, PEU, PE, SN, PBC <i>Mediator:</i> AT <i>Dependent:</i> PU, AT, BI, UB	The model explained 28%, 62%, 61%, and 18% of the variance in PU, AT, BI, and UB respectively
Sykes et al. (2009)	Finland	Content management systems	TAM, UTAUT, social networks	<i>Independent:</i> BI, FC, SNF <i>Dependent:</i> UB	SNF can significantly enhance our understanding of UB (system use)

¹PE: performance expectancy; EE: effort expectancy; SI: social influence; FC: facilitating conditions; G: gender; A: age; E: experience; VU: voluntariness of use; BI: behavioral intention; UB: use behavior; EX: extraversion; C: conscientiousness; AG: agreeableness; N: neuroticism; O: openness; GK: general computing knowledge; SK: specific Weblog-related knowledge; UF: usage frequency; S: support for IS; T: training in IS; AT: attitude toward IS; P: participation in the development of IS; SQ: system quality; PU: perceived usefulness; US: user satisfaction; SN: subjective norm; ED: education; CO: compatibility; AN: anxiety; SE: self-efficacy; PEU: perceived ease of use; DF: demographic factors; SEF: socio-economic factors; PF: personal factors; SIS: social isolation; DR: delay in responses; RAL: risk of arbitrary learning; AV: attainment value; UV: utility value; IV: intrinsic value; SDF: socio-demographic factors; MCF: media and channel use factors; GSF: government supply-of-services factors; BE: behavioral expectation; PE: perceived enjoyment; PBC: perceived behavioral control; SNF: social network factors; SB: shared belief; PC: project communication.

Now that we have examined the essence of an ERP system, the results of numerous existing works discussing about the advantages, the limits, and the impacts of ERP systems on the enterprises and their employees, as well as the relevant literature on the test of UTAUT model and extensions, in the next section of the paper we develop the theoretical approach which guides the present study.

Theoretical Approach

First, this study is theoretically-based on the unified view of user acceptance of IT developed and empirically validated by Venkatesh et al. (2003), that is, UTAUT model. UTAUT model

integrates eight theories of user acceptance of IT derived from the existing IS literature: the theory of reasoned action (TRA), the technology acceptance model (TAM), the motivational model, the theory of planned behavior (TPB), a model combining TAM and TPB, the model of PC (personal computer) utilization, the innovation diffusion theory (IDT), as well as the social cognitive theory (SCT). Since the development of UTAUT by Venkatesh et al. (2003), several researchers tested the model in diverse situations involving different technologies (see Table 1). In the present study, we are testing UTAUT in the context of acceptance and use of ERP systems in medium- to large-sized Canadian enterprises. The model is depicted in Figure 1.

Figure 1. Theoretical Research Model
(UTAUT, adapted from Venkatesh et al., 2003, p. 447)

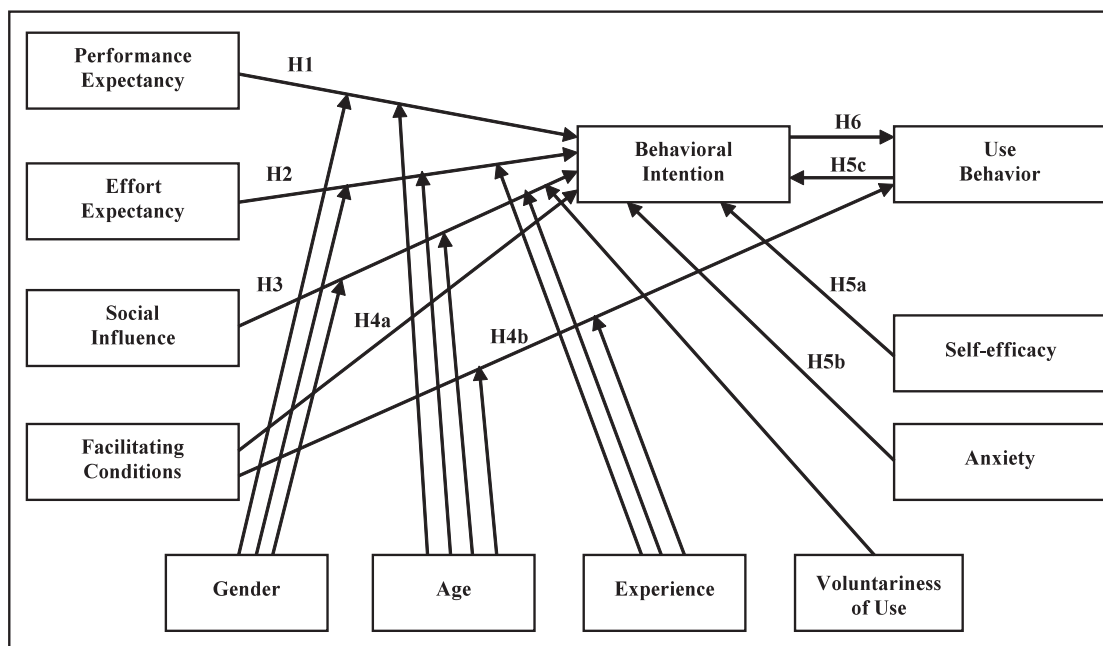


Table 2. Definitions of Variables

<i>Variables</i>	<i>Definitions</i>
<i>Independent variables</i>	
Performance Expectancy	The degree to which an individual believes that using the system will help him or her to attain gains in job performance (Venkatesh, 2010).
Effort Expectancy	The degree of ease associated with the use of the system (Venkatesh, 2010).
Social Influence	The degree to which an individual perceives that important others believe he or she should use the system (Venkatesh, 2010).
Facilitating Conditions	The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh, 2010).
Self-efficacy	The degree to which an individual believes that he or she has the ability

	to perform specific task/job using the system (Venkatesh, 2010).
Anxiety	The degree of an individual's apprehension, or even fear, when he or she is faced with the possibility of using the system (Venkatesh, 2010).
<i>Dependent variables</i>	
Behavioral Intention	The degree to which an individual has formulated conscious plans to perform or not perform some specified future behavior (Venkatesh, 2010).
Use Behavior	Individual's positive or negative feeling about performing the target behavior (e.g., using a system) (Venkatesh, 2010).
<i>Moderator variables</i>	
Gender	The individual's sex (male or female) (Danko & Schaninger, 1990).
Age	The individual's age (Danko & Schaninger, 1990). In this study, age is a numeral.
Experience	Knowledge, skill, or observation of a thing or an event gained through involvement or exposure to that thing or event (e.g., using a system).
Voluntariness of Use	The degree to which using an innovation is perceived as being voluntary or of free will (Moore & Benbasat, 1991).

Figure 1 shows that UTAUT model is formed of six independent variables having an influence on two dependent variables. In addition, four moderator variables might affect the direction and/or the strength of the relations between independent variables and dependent variables (Baron & Kenny, 1986). Performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, and anxiety are the independent variables, while behavioral intention and use behavior are the dependent variables. As for the moderator variables, they are gender, age, experience, and voluntariness of use. All these variables are defined in Table 2.

On the basis of the theoretical research model depicted in Figure 1, we have formulated nine research hypotheses.

H1: The influence of performance expectancy on behavioral intention will be moderated by gender and age.

H2: The influence of effort expectancy on behavioral intention will be moderated by gender, age, and experience.

H3: The influence of social influence on behavioral intention will be moderated by gender, age, experience, and voluntariness of use.

H4a: Facilitating conditions will not have a significant influence on behavioral intention.

H4b: The influence of facilitating conditions on usage will be moderated by age and experience.

H5a: ERP system self-efficacy will not have a significant influence on behavioral intention.

H5b: ERP system anxiety will not have a significant influence on behavioral intention.

H5c: Attitude toward using technology will not have a significant influence on behavioral intention.

H6: Behavioral intention will have a significant positive influence on usage.

In the next section of the paper, the methodology followed to conduct the study is described.

Methodology

The study was designed to gather information concerning adoption and use of ERP systems by middle managers and end-users in medium- to large-sized Canadian enterprises. Indeed, the focus of this study is on middle managers and end-users. We conducted this study using the questionnaire mailed with prepaid return envelope in medium- to large-sized Canadian enterprises. In this section, we describe the instrument development and validation, the sample and data collection, as well as the data analysis process.

Instrument Development and Validation

To conduct the study, we used the survey instrument developed and validated by Venkatesh et al. (2003). This survey instrument is of the same style to those used by Holsapple et al. (2005) to study the factors influencing ERP systems users. So this instrument was translated in French (a large part of the population, if not all, in some countries of Canada is speaking French) and both the French and English versions were evaluated by peers. This review assessed face and content validity (see Straub, 1989). As a result, minor changes were made to reword items, consistent with Moore and Benbasat's (1991) as well as DeVellis's (2003) recommendations for scale development. Subsequent to this, we distributed the survey instrument to a group of MBA students for evaluation. Once again, minor wording changes were made. Finally, we performed some adjustments to the format and appearance of the instrument, as suggested by both peers and MBA students. As the instrument was already validated by Venkatesh et al. (2003) and several other researchers who tested UTAUT in different contexts (see Table 1), and showed to be of a great reliability, then we have not performed a pilot-test with a small sample. The evaluations by both peers and MBA students were giving us some confidence that we could proceed with a large-scale data collection.

The survey instrument as such is composed of nine parts presented as following: performance expectancy, effort expectancy, attitude toward using technology, social influence, facilitating conditions, self-efficacy, anxiety, behavioral intention to use the system, as well as respondent characteristics (for more details about the instrument and the items forming each construct, see Venkatesh et al. 2003, p. 460). Once a middle manager or an end-user using the ERP system in his/her enterprise was chosen by the responsible-person to answer the survey, he/she had to rate each item of the survey on a seven points Likert-type scale (1: strongly disagree ... 7: strongly agree). In addition, the respondent was asked to answer some demographic questions.

Sample and Data Collection

First, in this study, we chose to survey middle managers and end-users using an ERP system in medium- to large-sized Canadian enterprises. To do this, the directors of about ten

medium- to large-sized enterprises from all the Canadian territory were contacted to participate in the study involving their usage of an ERP system. In fact, the first step was to select medium- to large-sized enterprises in Canada. And the second step was to contact the directors of these enterprises by email and/or by telephone in order to get their agreement to participate in our study. During this second step, the objective of the study was presented to each director and we were verifying whether his/her enterprise was managed using an ERP system. In the case where the enterprise had not an ERP system, the director was thanked and the enterprise was retired from our list (a list of medium- to large-sized Canadian enterprises taken on the Web). Some enterprises having an ERP system have not participated in the study either because the director was lacking time or because the enterprise had a strict politic about the confidentiality of its activities. Once the director was giving us his/her agreement to participate in the study, we were sincerely thanking him/her and we were asking him/her to find someone (sometimes himself/herself) who could take personally the study in hand in the enterprise. This responsible-person had to receive the questionnaires from us and to distribute them to middle managers and end-users using the ERP system in the enterprise. The number of questionnaires sent was depending on both the size of the enterprise and the number fixed by the director contacted. Prepaid return envelopes were also provided to the responsible-person who was distributing the questionnaires to middle managers and end-users of the ERP system. Overall, six medium- to large-sized enterprise's directors from three Canadian countries (e.g., New Brunswick, Nova Scotia, and Manitoba) agreed to participate in the study.

In the whole, over one hundred questionnaires were mailed to the six enterprises having agreed to participate in the study, and that in two versions, that is, French and English. Table 3 shows the distribution of the questionnaires sent to and received from the six medium- to large-sized Canadian enterprises having agreed to participate in our study.

Table 3. Distribution of the Questionnaires Sent and Received

<i>Enterprises¹</i>	<i>Questionnaires sent</i>	<i>Questionnaires received</i>	<i>Percentages</i>
E1	25	23	92.0
E2	36	13	36.1
E3	40	28	70.0
E4	10	2	20.0
E5	10	1	10.0
E6	5	5	100.0
Total	126	72	57.1
Total rectified²	126	71	56.3

¹The enterprises have been identified E1 thru E6 in order to keep their anonymity.

²One questionnaire received has been withdrawn given too much data was lacking.

More specifically, as shown in Table 3, we posted 126 questionnaires to the responsible-persons in the medium- to large-sized Canadian enterprises having agreed to participate in our study. Only two enterprises (E4 and E5) returned few completed questionnaires. We think that middle managers and end-users in these two enterprises had too much work to complete the questionnaire and then neglected answering it. But, the response rate, in general, was excellent, as shown in Table 3. In brief, we got a response rate of 57.1%. Of the 72 middle

managers and end-users that have answered our questionnaire, only one questionnaire has been withdrawn given too much information was lacking. Thus, the final response rate is 56.3%. Considering that, in general, the response rates of such studies involving mailed questionnaires including prepaid return envelopes are varying between 10% and 25%, the response rate of 56.3% that we got in this study is really exceptional.

Data Analysis Process

The data analysis of the study was performed using a structural equation modeling software, that is, Partial Least Squares (PLS-Graph 3.0). Using PLS, data have no need to follow a normal distribution and it can easily deal with small samples. In addition, PLS is appropriate when the objective is a causal predictive test instead of the test of a whole theory (Barclay et al., 1995; Chin, 1998) as it is the case in this study. To ensure the stability of the model developed to test the research hypotheses, we used the PLS bootstrap resampling procedure (the interested reader is referred to a more detailed exposition of bootstrapping (see Chin, 1998; Efron and Tibshirani, 1993)) with an iteration of 100 sub-sample extracted from the initial sample (71 middle managers and end-users from six medium- to large-sized Canadian enterprises using ERP systems). Some analyses were also performed using the Statistical Package for the Social Sciences software (SPSS 17.0). The results follow.

Results

In this section of the paper, the results of the study are reported. We begin to present some characteristics of the participants. Then we validate the PLS model developed to test the research hypotheses. Finally, we describe the results got from PLS analyses to test the research hypotheses.

Participants

The participants in this study were relatively aged, with a mean of 40.4 years and a standard deviation of 8.6 years. These statistics on the age of the participants are, in fact, consistent with the growing old population phenomenon. A few more than half of the participants were female (52.1%). As for the level of education, 11.3% of the participants in the study got a high-school diploma, 36.6% got a college degree, 35.2% completed a baccalaureate, and 8.5% completed a master. None of the participants got a doctorate. These statistics on the level of education are relatively consistent with the target participants in the study, that is, middle managers and end-users. All of the respondents in our study were full-time employees (100%). Only 25.4% of the participants in the study were using the ERP system on a voluntary basis, the other 74.6% were using the ERP system on a mandatory basis (by obligation). This can mean that most users prefer not to use an ERP system and that they make it only because they have no other choice: the system is implemented in the enterprise to manage the daily activities. And, finally, near from three quarter of the respondents (69%) were using an ERP system for more than three years. Each of the other categories offered in this demographic question got a very small percentage of respondents, that is, three months (2.8%), six months (4.2%), one year (9.9%), two years (5.6%), and three years (8.5%). So these statistics on the experience using an ERP system show that most users had a great experience with the system.

Validation of the PLS Model to Test Hypotheses

First, to ensure the reliability of a construct or a variable using PLS, one must verify the three following properties: individual item reliability, internal consistency, and discriminant validity (for more details, see Yoo and Alavi, 2001).

To verify individual item reliability, a confirmatory factor analysis (CFA) was performed on independent and dependent variables of the theoretical research model. A single iteration of the CFA was necessary given all loadings of the variables were superior to 0.50 and then none item was withdrawn nor transferred in another variable in which the loading would have been higher. Indeed, in the whole, items had high loadings, which suppose a high level of internal consistency of their corresponding variables. In addition, loadings of each variable were superior to cross-loadings with other variables of the model. Hence the first criterion of discriminant validity was satisfied.

And to get composite reliability indexes and average variance extracted (AVE) in order to satisfy the second criterion of discriminant validity and to verify internal consistency of the variables, we used PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (71 middle managers and end-users from six medium- to large-sized Canadian enterprises using ERP systems). The results are partially (for a matter of space) presented in Table 4.

Table 4. Means, Standard Deviations, and Composite Reliability Indexes of Variables

<i>Variables</i>	<i>Means</i>	<i>Standard deviations</i>	<i>Reliability indexes</i>
Performance Expectancy	5.20	1.89	0.84
Effort Expectancy	5.55	1.18	0.92
Social Influence	4.79	1.66	0.87
Facilitating Conditions	4.89	1.63	0.74
Self-Efficacy	5.17	1.48	0.85
Anxiety	2.00	1.30	0.92
Behavioral Intention	6.27	1.50	0.97
Use Behavior	5.23	1.52	0.93
Gender ¹	NA	NA	NA
Age ²	40.39	8.62	NA
Experience ¹	NA	NA	NA
Voluntariness of Use ¹	NA	NA	NA

¹This variable was coded as a nominal variable. It was measured in terms of non quantified distinct categories.

²This variable was coded as a numeral.

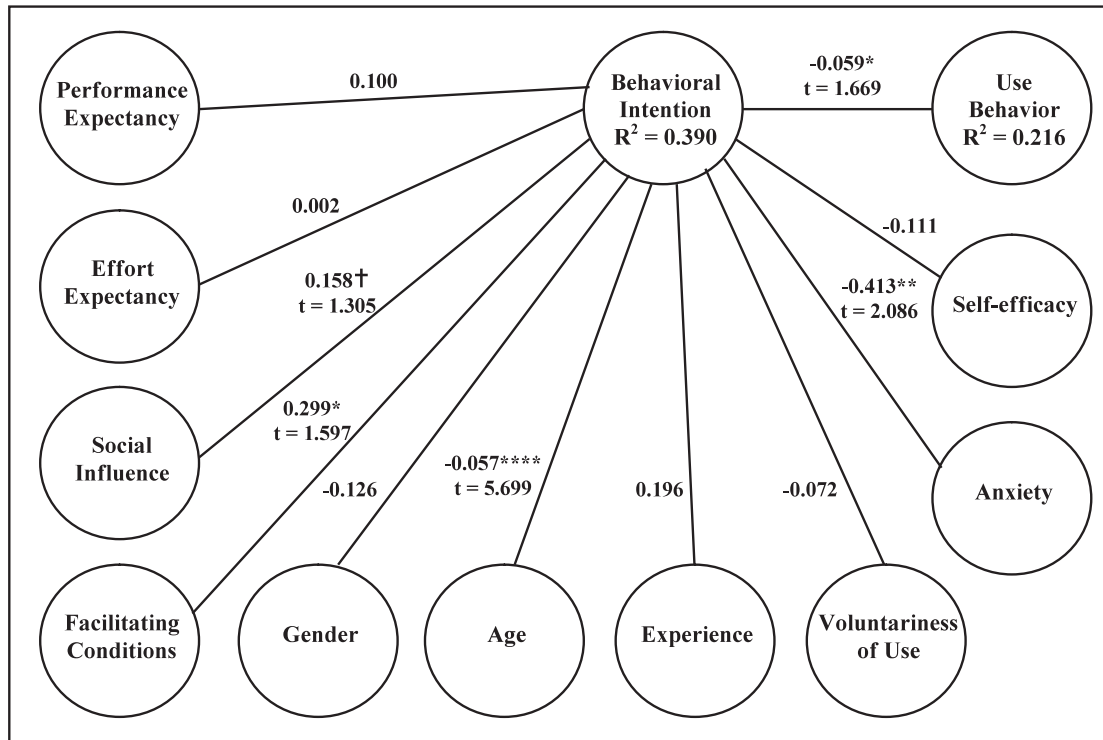
PLS analysis indicated that all square roots of AVE were higher than the correlations with other variables of the model. In other words, each variable shares more variance with its measures than it shares with other variables of the model. Consequently, discriminant validity

is verified. Finally, as supposed previously, we can see in Table 4 that PLS analysis showed high composite reliability indexes for all variables of the theoretical research model. The variables have therefore a high internal consistency, with composite reliability indexes ranging from 0.74 to 0.97.

Hypothesis Testing

First, to get the significant variables in the study and the percentage of variance explained (R^2 coefficient) by all the variables of the theoretical research model, we developed a PLS model similar to those of Fillion (2005), Fillion and Le Dinh (2008), Fillion et al. (2010a), Fillion and Booto Ekionea (2010b), and Yoo and Alavi (2001). And to ensure the stability of the model, we used the PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (71 middle managers and end-users from six medium- to large-sized Canadian enterprises using ERP systems). The PLS model is depicted in Figure 2.

Figure 2. PLS Model to Get Significant Variables and Percentages of Variance Explained



† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; **** $p < 0.001$.

As shown in Figure 2, all the variables of our theoretical research model, taken as independent variables, are explaining 39% of the variance on the dependant variable behavioral intention. And the dependent variable behavioral intention, taken as independent variable, is explaining 21.6% of the variance on the dependent variable use behavior. Overall, the model is explaining 60.6% of the variance on the dependent variables behavioral intention and use behavior. So the amount of variance explained by UTAUT in this Canadian study is very consistent with those explained in other studies testing UTAUT in several other countries in

the world (see Table 1). In fact, in our study, UTAUT model explained more variance on the dependent variables than in the studies conducted by Wang and Yang (2005), Anderson et al. (2006), Chiu and Wang (2008), and Gupta et al. (2008); it explained about the same amount of variance on the dependent variables than in the studies performed by Venkatesh et al. (2008) and Lu et al. (2009); but the model explained a few less variance on the dependent variables than in the studies realized by Venkatesh et al. (2003), Al-Gahtani et al. (2007), Chang et al. (2007), Kijisanayotin et al. (2008) and Wills et al. (2008).

We can also see in Figure 2 that four variables were found significant influencing factors in the use of ERP systems by middle managers and end-users in medium- to large-sized Canadian enterprises. More specifically, the two more significant variables in the study are age ($t = 5.699$, $\beta = -0.057$, $p < 0.001$) and anxiety ($t = 2.086$, $\beta = -0.413$, $p < 0.01$). And two other variables are significant to the level of significance required in this study, that is, $p \leq 0.05$. They are facilitating conditions ($t = 1.597$, $\beta = 0.299$, $p < 0.05$) and behavioral intention ($t = 1.669$, $\beta = -0.059$, $p < 0.05$). On the other hand, another variable, that is social influence ($t = 1.305$, $\beta = 0.158$, $p < 0.10$), is significant, but the level of significance is $p < 0.10$, while the level of significance required in this study is $p \leq 0.05$.

In order that the reader can have a good overall view of the amount of variance explained by each variable in UTAUT model, we have regrouped all the variables with their corresponding amount of variance explained (R^2 coefficient) in Table 5. So Table 5 shows that the variables anxiety and behavioral intention (while taken as independent variable) are explaining alone near from 44% of the variance on the dependent variables. The variable facilitating conditions is explaining 8.3% of the variance on the dependent variable behavioral intention. Furthermore, the two variables social influence (significant at $p < 0.10$) and experience (not significant) are explaining together 7.7% of the variance on the dependent variable behavioral intention. On the other hand, it is quite surprising to see in Table 5 that, although the variable age had a very significant direct effect ($p < 0.001$) on the dependent variable behavioral intention, it is not at all contributing to explain the variance on this dependent variable.

Table 5. Amounts of Variance Explained by UTAUT Variables

<i>Variables</i>	<i>Beta coefficients</i>	<i>t-values (one-tail)</i>	<i>R²</i>
Performance Expectancy	0.100	0.902	0.007
Effort Expectancy	0.002	0.012	0.000
Social Influence	0.158†	1.305	0.015
Facilitating Conditions	0.299*	1.597	0.083
Self-efficacy	-0.111	0.771	0.000
Anxiety	-0.413**	2.086	0.221
Behavioral Intention	-0.059*	1.669	0.216
Gender	-0.126	0.500	0.001
Age	-0.057****	5.699	0.000
Experience	0.196	1.164	0.062
Voluntariness of Use	-0.072	0.548	0.001

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; **** $p < 0.001$.

In the last part of this section, we verify the nine research hypotheses formulated in the section related to the theoretical approach of the study. Some hypotheses are independent hypotheses (e.g., H4a, H5a, H5b, H5c, and H6), while others are moderator hypotheses (e.g., H1, H2, H3, and H4b). As for moderator hypotheses, to measure interaction effect of moderator variables: gender (G), age (A), experience (E), and voluntariness of use (VU) in order to verify hypotheses H1, H2, H3, and H4b, we used the PLS procedure proposed by Chin et al. (2003) (see the paper for more details). On the other hand, in a review of 26 papers assessing interaction effect of moderator variables published between 1991 and 2000 into IS journals, Carte and Russell (2003) found nine errors frequently committed by researchers when they estimate such an effect, and provided solutions (see their paper for more details). We tried to avoid these nine errors in applying their solutions to test hypotheses H1, H2, H3, and H4b. Indeed, among others, in the verification of hypotheses H1, H2, H3, and H4b that follows, interaction effect of a moderator variable is significant if, and only if, the path between the latent variable (the multiplication of items of independent and moderator variables forming interaction effect) and the dependent variable is significant, as well as if the change in R^2 coefficient (the difference between the R^2 calculated before the addition of interaction effect and those calculated after the addition of interaction effect, that is, ΔR^2 (named δR^2)) is greater than 0.

For a matter of space, given that the test of the nine hypotheses required the development of several PLS structural equation models, we summarize PLS analyses to test each hypothesis. And, as for the PLS model developed to get the significant variables in the study and the percentages of variance explained by all of the variables of our theoretical research model (UTAUT) previously, for each PLS model developed, we used the PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (71 middle managers and end-users from six medium- to large-sized Canadian enterprises using ERP systems) to ensure the stability of the model.

Concerning hypothesis 1 related to the independent variable performance expectancy (PE), the path from the latent variable $PE \cdot A \cdot G$ to the dependent variable behavioral intention is not significant ($t = 0.538$, $\beta = -0.233$), but there is a small change in R^2 ($\Delta R^2 = 0.003$). Thus, contrary to our expectations, the moderator variables age (A) and gender (G) have not a significant influence on the relation between performance expectancy and behavioral intention. As a result, hypothesis 1 is not supported. The scenario is similar for hypothesis 2 related to the independent variable effort expectancy (EE). The path from the latent variable $EE \cdot A \cdot G \cdot E$ to the dependent variable behavioral intention is not significant ($t = 0.258$, $\beta = 0.141$), but there is a small change in R^2 ($\Delta R^2 = 0.001$). Thus, contrary to our expectations, the moderator variables age (A), gender (G), and experience (E) have not a significant influence on the relation between effort expectancy and behavioral intention. Hypothesis 2 is then not supported. The scenario is also similar for hypothesis 3 related to the independent variable social influence (SI), the path from the latent variable $SI \cdot G \cdot A \cdot E \cdot VU$ to the dependent variable behavioral intention is not significant ($t = 0.486$, $\beta = 0.135$), but there is a small change in R^2 ($\Delta R^2 = 0.002$). Therefore, contrary to what we expected, the moderator variables gender (G), age (A), experience (E), and voluntariness of use (VU) have not a significant influence on the relation between social influence and behavioral intention. And hypothesis 3 is not supported.

Regarding hypothesis 4a related to the independent variable facilitating conditions, the path from this variable to the dependent variable behavioral intention is very significant ($t = 4.395$, $\beta = 0.446$, $p < 0.001$). Thus, contrary to what we formulated in the hypothesis, facilitating conditions have a significant influence on behavioral intention. Consequently, hypothesis 4a is not supported. As for hypothesis 4b which is also related to the independent variable facilitating conditions (FC), the path from the latent variable FC*A*E to the dependent variable use behavior (UB) is not significant ($t = 0.462$, $\beta = 0.210$), but there is a small change in R^2 ($\Delta R^2 = 0.001$). So contrary to what we formulated in the hypothesis, the moderator variables age (A) and experience (E) have not a significant influence on the relation between facilitating conditions and use behavior. As a result, hypothesis 4b is not supported.

As for hypothesis 5a related to the independent variable self-efficacy, the path from this variable to the dependent variable behavioral intention is significant ($t = 1.629$, $\beta = 0.299$, $p < 0.05$). So contrary to what we expected, self-efficacy has a significant influence on behavioral intention. Consequently, hypothesis 5a is not supported. The scenario is similar for hypothesis 5b related to the independent variable anxiety, the path from this variable to the dependent variable behavioral intention is very significant ($t = 3.088$, $\beta = -0.512$, $p < 0.001$). Thus, contrary to our expectations, anxiety has a significant influence on behavioral intention. Hypothesis 5b is then not supported. Concerning hypothesis 5c related to the independent variable use behavior (the dependent variable use behavior was employed here as an independent variable to verify this hypothesis), the path from this variable to the dependent variable behavioral intention is not significant ($t = 0.951$, $\beta = 0.269$). Thus, as we expected, use behavior has not a significant influence on behavioral intention. Hypothesis 5c is then supported. Finally, regarding hypothesis 6 related to the independent variable behavioral intention (the dependent variable behavioral intention was used here as an independent variable to verify this hypothesis), the path from this variable to the dependent variable use behavior is not significant ($t = 0.870$, $\beta = 0.269$). So contrary to what we formulated in the hypothesis, behavioral intention has not a significant positive influence on use behavior. As a result, hypothesis 6 is not supported. Table 6 presents a summary of the test of hypotheses.

Table 6. Summary of the Test of Hypotheses

<i>Hypotheses</i>	<i>Results</i>	<i>Software (beta sig.)</i>
H1- The influence of performance expectancy on behavioral intention will be moderated by gender and age.	Not supported	PLS (-0.233)
H2- The influence of effort expectancy on behavioral intention will be moderated by gender, age, and experience.	Not supported	PLS (0.141)
H3- The influence of social influence on behavioral intention will be moderated by gender, age, experience, and voluntariness of use.	Not supported	PLS (0.135)
H4a- Facilitating conditions will not have a significant influence on behavioral intention.	Not supported	PLS (0.446****)
H4b- The influence of facilitating conditions on usage will be moderated by age and experience.	Not supported	PLS (0.210)

H5a- ERP system self-efficacy will not have a significant influence on behavioral intention.	Not supported	PLS (0.299*)
H5b- ERP system anxiety will not have a significant influence on behavioral intention.	Not supported	PLS (-0.512****)
H5c- Attitude toward using technology will not have a significant influence on behavioral intention.	Supported	PLS (0.269)
H6- Behavioral intention will have a significant positive influence on usage.	Not supported	PLS (0.269)

*p < 0.05; ****p < 0.001.

In summary, as shown in Table 6, only one hypothesis has been supported in our study, that is, H5c. No moderator variables had a significant influence on the relations between the independent and dependent variables involved. This is why hypotheses H1, H2, H3, and H4b were not supported. Facilitating conditions, self-efficacy, and anxiety had not a significant influence on behavioral intention. Hence hypotheses H4a, H5a, and H5b were not supported. And behavioral intention had not a significant influence on usage. Hence hypothesis H6 was not supported.

In the next and last section of the paper, we discuss about the findings of the study, the theoretical and practical implications, the limitations, and the future directions.

Discussion and Conclusions

The objective of this study was to identify the influencing factors in the use of ERP systems in medium- to large-sized Canadian enterprises. Only one hypothesis has been supported in the study, that is, H5c. This one suggests that attitude toward using technology has not a significant influence on behavioral intention to use technology. The fact that this hypothesis has been supported here is consistent with the results of Venkatesh et al.'s (2003) study from which we have established the theoretical foundation of our study. On the other hand, Park et al. (2007) got opposite results in their study conducted in China. And it is the same for van Dijk et al. (2008) in their study performed in Netherlands.

So we can now answering our research question formulated in the introduction of the paper. The answer to this question will allow us to highlight the influencing factors on the use of ERP systems by middle managers and end-users in medium- to large-sized Canadian enterprises. Following some PLS data analyses (see Figure 2 and Table 5), it emerges that the significant variables are the following.

Facilitating conditions is the first significant variable with a t-value of 1.597 (p < 0.05) showing a positive effect on behavioral intention to use technology, which is in opposition with the results of Venkatesh et al.'s (2003) study made in USA. Indeed, these authors found that facilitating conditions have no significant influence on behavioral intention to use technology, but rather they have a significant effect on using technology and a still more pronounced effect on using technology by more aged employees having a greater experience. Testing UTAUT with an extension on individual personality traits in Taiwan, Wang and Yang (2005) found that the effects of extraversion and openness on intention to adopt a technology are significant only thru the intervention of facilitating conditions. In their study conducted in USA, Pu Li and Kishore (2006) noted that facilitating conditions have no effect on gender of technology users, but they have an effect on their experience using technology. Contrary to

our study and those of Venkatesh et al. (2003), Anderson et al. (2006) noted, in their study made in USA, that facilitating conditions have no positive effect on using technology. It is the same for the study realized by Chang et al. (2007) in Taiwan. A meta-analysis of 121 studies (from all around the world) published between 1980 and 2004 performed by Sabherwal et al. (2006) indicates that facilitating conditions are significant to predict behavioral intention to use technology. This meta-analysis then provides strong support to the results got in our study regarding facilitating conditions. The study conducted by Schaper and Pervan (2007) in Australia is also supportive of these results. However, these results are in contradiction with those obtained by Chiu and Wang (2008) in their study realized in Taiwan. On the other hand, the results of Schaper and Pervan's (2007) study indicate a non significant influence of facilitating conditions on using technology, which is consistent with the results of the study performed by Al-Gahtani et al. (2007) in Saudi Arabia, but which is in opposition with the results of our study, those made by Venkatesh et al. (2003), those realized by Park et al. (2007) in China, those conducted by van Biljon and Kotzé (2007) in South Africa, those performed by Wills et al. (2008) and Sykes et al. (2009) in USA, those made by Gupta et al. (2008) in India, and those conducted by Kijnsanayotin et al. (2008) in Thailand. Al-Gahtani et al. (2007) also found that age has a negative moderating effect of the influence of facilitating conditions on using technology, while experience has not. In another study realized by Venkatesh et al. (2008) in USA, behavioral expectation showed to have a high mediating effect of the influence of facilitating conditions on using technology. In this same study, the effect of facilitating conditions on behavioral expectation was moderated by gender, age, and experience, which is partially in contradiction with the results of our study.

The second significant variable in the present study is anxiety with a t-value of 2.086 ($p < 0.05$) associated to a negative effect ($\beta = -0.413$). This variable is no significant in UTAUT model tested by Venkatesh et al. (2003). However, as in our study, anxiety is significant in the study performed by Schaper and Pervan (2007). In addition, anxiety is negatively linked to behavioral intention to use technology in the study conducted by Chiu and Wang (2008), which provides strong support to the results of our study.

The third significant variable found in our study is behavioral intention to use technology with a t-value of 1.669 ($p < 0.05$) associated to a negative effect ($\beta = -0.059$). This variable is also significant in Venkatesh et al.'s (2003) study given it has a direct effect on the dependent variable use behavior (e.g., using the system or technology). The significant negative effect of this variable got in our study comparatively to the significant positive effect got in Venkatesh et al.'s (2003) study can be partially explained by the fact that we have a relatively small sample in our study, that is 71 respondents, while the sample in Venkatesh et al.'s (2003) study is 215 respondents, that is, three times greater. This significant negative effect of behavioral intention on use behavior that we got in this study can also be largely explained by the fact that 53 out of 71 respondents (75%) said using the ERP system on a mandatory basis (by obligation) and not on a voluntary basis (for more details about the statistics, see the participants sub-section at the beginning of this section). Indeed, according to us, this assuredly had the impact to negatively affect their responses to the two series of items related to the variables behavioral intention and use behavior.

The meta-analysis of 121 studies published between 1980 and 2004 made by Sabherwal et al. (2006) is also consistent with our results related to the significance of the variable behavioral intention to use technology (here the variable user attitude to use technology is employed) on the variable use behavior. And it is the same for the studies of Chang et al. (2007), van Biljon

and Kotzé (2007), Wills et al. (2008), Kijsanayotin et al. (2008), van Dijk et al. (2008), Lu et al. (2009), and Sykes et al. (2009). Besides, the results of the study made by Schaper and Pervan (2007) are in opposition. In fact, these authors noted no significant effect of behavioral intention on use behavior. The study made by Gupta et al. (2008) also provides support for these opposite results. On the other hand, the results of the study conducted by Venkatesh et al. (2008) indicate that the effect of behavioral intention on use is moderated by experience such that, when using experience increases, the effect becomes more pronounced. These results are therefore consistent with those got in the present study. Besides, in their study performed in South Africa, Seymour et al. (2007) showed that performance expectancy and effort expectancy have an influence on behavioral intention, and that age has a moderating effect on the relation between performance expectancy and behavioral intention.

Finally, the fourth significant variable found in our study is the moderator variable age with a t-value of 5.699 ($p < 0.001$) associated to a negative effect ($\beta = -0.057$). This finding is also consistent with Venkatesh et al.'s (2003) study. In fact, age is a factor having a great influence on different variables in the studies that we examined. It is to note that some variables have an effect on young employees, as performance expectancy, and others have an influence on more aged employees, as facilitating conditions. Anderson et al. (2006) found that age has a negative effect, but on use behavior instead of behavioral intention as it is the case in our study and in those of Venkatesh et al. (2003). Al-Gahtani et al. (2007) noted, in their study, that age has not a moderating effect of the influence of performance expectancy and effort expectancy on behavioral intention to use technology. These findings are consistent with those we got in our study, but they are in opposition with those observed in Venkatesh et al.'s (2003) study. The results of Al-Gahtani et al.'s (2003) study also indicate, on the one hand, that age has a negative moderating effect of the influence of social influence on behavioral intention, which is in opposition with the results observed in this study and in the study of Venkatesh et al. (2003) and, on the other hand, that age has a negative moderating effect of the influence of facilitating conditions on use behavior, which is in opposition with the results observed in the study of Venkatesh et al. (2003). Venkatesh et al. (2008), then, noted that the effect of facilitating conditions on behavioral expectation is moderated by age, which is partially in opposition with the results of our study. Finally, the results of the study conducted by van Dijk et al. (2008) indicate that age has no significant effect on behavioral intention to use technology, which is partially supportive of the results got in our study.

Of course, a fifth variable, that is social influence, was found significant in our study, but only to a level of significance $p < 0.10$. As mentioned earlier, this is not enough significant to be officially considered here given the level of significance required in this study is $p \leq 0.05$.

Besides, while studying the impacts of ERP systems on businesses management, we can see that the majority of employees anticipate an improvement in performance using these systems and they praise their easiness of use given the formation and help provided by trainers and/or colleagues when facing difficulties. Also, as the level of anxiety was very low and the level of self-efficacy was high in this study, then the effect will be assuredly very positive when using ERP systems in these enterprises.

In the global PLS model presented in the previous section (see Figure 2) we can see that 39% of the variance explained is on the dependent variable behavioral intention, while 21.6% of the variance explained is on the dependent variable use behavior. So the addition of moderator variables (gender, age, experience, and voluntariness of use) to the model allowed to explain

6.4% more variance ($R^2 = 60.6\%$ versus $R^2 = 54.2\%$). This improvement in percentage of variance explained is excellent and shows that several variables can have an indirect effect (moderator) on behavioral intention to use ERP systems.

According to the demographic data got in this study, we can see that the use of ERP systems by middle managers and end-users in medium- to large-sized Canadian enterprises is not on a voluntary basis. Indeed, 74.6% of the middle managers and end-users who answered our survey said that they were using ERP systems on a mandatory basis (by obligation) instead of on a voluntary basis. On the other hand, we can see that the respondents are in majority female (52.1%). As for the level of education, most of the respondents got a college degree (36.6%), a baccalaureate degree (35.2%), or a high-school diploma (11.3%). And all the respondents are full-time workers (100%).

Regarding the limitations of this study, according to us, the main limitation is the small sample of enterprises participating in the study, that is, six medium- to large-sized Canadian enterprises. The results would be assuredly more representative (e.g., a higher level of generalization of the results) whether more Canadian enterprises had been participating. So an increase in the number of participating Canadian enterprises could be eventually considered in future studies, which will also allow, at the same time, to identify some other factors having the potential to improve the performance of enterprises using ERP systems. This will also assuredly have an influence on research hypotheses (supported versus not supported, etc.).

As for the theoretical and practical implications of the study, they are the following. Concerning the theoretical implications, our contribution is to add a Canadian study to the body of research from all around the world on the impacts of ERP systems on medium- to large-sized enterprises and their employees. At our knowledge, no Canadian study had been performed until now in this domain. Our study therefore comes sometimes to enrich and sometimes to contradict actual theories, and thus shed new lights on the impacts of ERP systems on medium- to large-sized enterprises at the global level. Regarding the practical implications, the present study will be assuredly contributing in a significant way to the success of medium- to large-sized Canadian enterprises given it will be providing them with a good overall view of the impacts of this particular type of IS on the enterprises, their employees, and the work of these employees.

Concerning future studies, we will be conducted very soon a similar study in small- to medium Atlantic enterprises (SMEs). This will allow us to compare the results got from Atlantic SMEs with those we observed in medium- to large-sized Canadian enterprises and thus to draw some conclusions regarding their use of ERP systems. In addition, much more research is needed on the use of this particular type of IS in order to better understand its impacts on enterprises, their employees, and the work of these employees.

Finally, to conclude, the biggest surprise in this study is that most of the users of ERP systems are using the systems on a mandatory basis (by obligation) and not on a voluntary basis. This can mean that most users prefer not to use an ERP system and that they make this only because they have no other choice: the system is implemented in the enterprise to manage the activities. This finding is extremely important here given it is directly linked to the studies on the factors influencing adoption and use of ERP systems in enterprises. So, according to the results of this study, as researchers, we have now to try answering the following question: What are the specific factors in an ERP system implementation that will make such the users

of this system will be using it on a voluntary basis and not on a mandatory basis? Here is a crucial question to examine in future studies to advance theories on adoption and use of ERP systems in enterprises!

Acknowledgments

The authors would sincerely like to thank professor Wynne W. Chin (University of Houston at Texas) who kindly offered to us a license of the last version of his structural equation modeling software PLS to perform the data analysis of this study.

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ASB 2010
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CLASSIFYING ORGANIZATIONS BY KNOWLEDGE INTENSITY – A NECESSARY NEXT STEP IN KNOWLEDGE MANAGEMENT RESEARCH

Knowledge-intensive organizations (KIOs) have recently emerged as a popular topic of study in the knowledge management literature. This study explores what KIOs are and the key elements for differentiating these organizations from other traditional organizations. The results suggest that organizations can generally be divided into two groups - KIOs and non-KIOs, and there appears to be some clear and outright factors that differentiate KIOs from non-KIOs.

Introduction

There is growing interest in knowledge-intensive organizations (KIOs) among knowledge management (KM) academics and practitioners (Starbuck 1992; Blackler, 1995; Alvesson 2004; Ichijo and Nonaka 2007; Sveiby and Lloyd 1988; Nurmi 1999; Sheehan 2002). KIOs are presumed to be the new types of organizations, distinct from the labour and capital intensive organizations which were dominant in the 20th century. Their distinctiveness, as Drucker (1993) observed, is in their use of knowledge as “the means of production”. But what are KIOs? An exploration of the literature reveals discrepancies in the characterization of these organizations. There is a lack of consensus among scholars and practitioners on the definition of a KIO. From a knowledge management (KM) research perspective, it seems intuitively clear that there might be significant differences in the KM practices and support needs of an organization that is knowledge intense compared to one that is not. Such research is going to be seriously impaired as long as we have no set boundary conditions or an operational framework of how to recognize knowledge intensity in an enterprise.

This study, therefore empirically tests the prevailing theoretical propositions on what organizations can be identified as KIOs and the factors that differentiate these organizations

from other traditional organizations. We empirically explore the limited prevailing theoretical propositions with the help of the professional and academic communities whom we would expect to know the answer. The focus is on trying to understand which organizations are KIOs. By differentiating KIOs from non-KIOs, this study lays a foundation for the systematic development and evaluation of these organizations and their KM practices. In other words we hope that results from this study can stimulate issue formulation and hypothesis generation for investigation by KM researchers and academics.

Knowledge-Intensive Organizations: A Literature Review

A number of scholars have argued that in the knowledge economy all firms make use of knowledge to stay competitive and thus are in essence KIOs (Abell & Oxbrow, 2001; Nonaka & Takeuchi, 1995; Brown & Duguid, 1998). In other words one cannot consider knowledge as a differentiating element for certain organizations. But recent literature has disagreed, arguing that not all firms can be considered knowledge-intensive (Ichijo & Nonaka, 2007; Starbuck, 1992; Swart & Kinnie, 2003; Alvesson, 2004; Sveiby & Lloyd, 1988; Robertson & Swan, 1998; Deng, 2008). The authors point out that although knowledge is important to every company's success for some companies it is not critical. But for KIOs embedded knowledge is critical to the company's success, i.e., it is what the company produces and sells. As Ichijo & Nonaka (2007) concluded, it is therefore, "inappropriate to consider all companies knowledge-intensive" (p. 323).

However, very few scholars have attempted to define and identify the essential characteristics of KIOs. Of the 59 authors we identified that make reference to KIOs or KIFs only fifteen authors make a substantive attempt to produce an operational definition of a KIO (Sveiby & Lloyd, 1988; Starbuck, 1992; Winch & Schneider, 1993; Blackler, 1995; Robertson & Swan, 1998; Nurmi, 1998; Alvesson, 2001; Sheehan, 2002; Swart & Kinnie, 2003; Ditillo, 2004; Sheehan & Stabell, 2007; Ichijo & Nonaka, 2007; Benbya, 2008; Deng, 2008; Greenwood, 2009). An analysis of the operational definitions of KIOs given by these authors reveals a lack of consensus on the definition of these organizations. Moreover, the distinction of KIOs from other organizations is not apparently self-evident. On one hand, for instance, the reliance on human resources as opposed to physical capital is regarded by a number of scholars as a key differentiator of KIOs from other traditional organizations (Sveiby & Lloyd, 1988; Winch & Schneider, 1993; Alvesson, 1993, 2004; Swart & Kinnie, 2003; Ichijo & Nonaka, 2007; Deng, 2008). While a few authors point to employee skills as central to the creation of competitive advantage of KIOs, thus placing emphasis on the substantive number of knowledge workers within the organization. Starbuck (1992), for example, defines KIOs as organizations in which one-third of the experts have the equivalent of a doctoral degree in formal education and experience. Deng (2008) agrees with this premise and refers to KIOs as firms whose major workforce comprises well-educated and skilled employees. On the other hand some authors question whether workers' formal education and skills can be considered key elements differentiating KIOs from other organizations. Alvesson (2004) argues that rather than focusing on the educational level of the worker KIOs should be defined according to the workers' daily tasks i.e., what they do. He states that KIOs employ substantial numbers of people working with complex tasks that call for autonomy and the use of judgment. Starbuck (1992) agrees with this viewpoint and points out that it is the application of expertise which makes an important contribution in KIOs. In line with this observation, Swart & Kinnie

(2003) conclude that it is not only the presence of human capital that is important in defining KIOs: it is also the way in which expertise is applied that makes these organizations distinctive.

On the other hand, some authors focus on the capacity of experts to solve complex problems through creative and innovative solutions, as a key source of value creation in KIOs (Sheehan, 2002; Greenwood, 2009; Deng, 2008; Ichijo & Nonaka, 2007). Some authors focus on the organization's input and output or product. For instance a KIO is distinguished as an organization; that sells knowledge (Ichijo & Nonaka, 2007), that produces and sell "knowhow" (Sveiby & Lloyd, 1988), that offers to the market the use of fairly sophisticated knowledge or knowledge-based products (Alvesson, 1993, 2004), in which "knowledge assumes more importance than other kinds of inputs" (Robertson & Swan, 1998), or that creates market value through the application of knowledge (Swart & Kinnie, 2003; Deng, 2008). A common ingredient to a KIO's input and output, as presented in these definitions, is knowledge. But knowledge as an output is differentiated in the literature from the organization's use of knowledge as an input or being "knowledge rich". As Greenwood (2009) argues being "knowledge rich", e.g. universities, does not necessarily mean that the organization can be regarded as knowledge-intensive. Greenwood (2009) thus, provides a different perspective of looking at KIOs. As he puts it if high quality knowledge and a large staff of highly trained people automatically give rise to a KIO then research universities would be by definition KIOs. But as he concludes they are not. KIOs are a "product of structures, relationships, and dynamics in the organizations, not of the quanta of knowledge they contain, the level of education of their personnel, or their sectoral location" (Greenwood 2009, p.35).

We view Greenwood's (2009) argument as intuitively attractive but there is still need for developing meaningful distinction between KIOs and other organizations, i.e., the need to establish boundary conditions that can be useful in testing existing organization theories. It is evident, as Starbuck concluded, that no clear definition of KIOs has wide acceptance. In other words, the exact boundaries of the KIO category, as portrayed in the definitions of these organizations, are somewhat obscure. To a KM practitioner or researcher defining KIOs is important in as far as it helps to delineate the different elements to keep in mind when designing or evaluating KM practices in KIOs. The literature reveals that for KIOs the benefits of knowledge management are well pronounced. As Amar (2002) pointed out, knowledge management strategies that work best in KIOs are different from those in traditional organizations. Moreover, research reveals that the management strategies for knowledge should be informed by the nature of the business. A "company's choice of knowledge management strategy is not arbitrary - it must be driven by the company's competitive strategy how it creates value for customers, how that value supports an economic model, and how the company's people deliver on the value and the economics" (Hansen, Nohria, and Tierney 1999, p. 107). With regards to KM in KIOs it is important therefore, to develop an understanding of the distinct characteristics of KIOs and how these characteristics interlace with strategies employed to support KM.

Research Design & Methodology

This study focuses on KM professionals' understanding of KIOs. We hypothesize that "there are no clear and outright factors that distinguish a KIO from a non KIO". Thus, to test the null

hypothesis we surveyed KM professionals, a purposely selected community of study. As stated in the covering letter to the survey, we solicited the cooperation of people who consider themselves to be KM professionals, and are familiar with the concept KIO or KIF. Since the literature is inconclusive and problematic, our interest is to ask the professionals in the field to identify conclusive KIO factors.

A survey was administered to four KM professional groups from around the globe with total membership of 4000, an unknown percentage of which is overlapping (i.e., number of individuals with membership to more than one group). The use of a targeted collective group of key informants provides an important advantage, i.e., “high probability that the most knowledgeable informant is providing data” (Doty et al., 1993). The survey was conducted online using the Opinio survey system. A draft survey instrument was tested with a group of information management masters students to assess construct relevance and clarity of questions. Also instead of directly asking KM professionals for their perceived groupings of firms that share certain common characteristics that might define them as knowledge-intensive, a number of computational steps are followed in order to infer different KIO groupings and capture the multidimensionality of the knowledge-intensity constructs of interest. The computations are carried out using the PASW Statistics 17.0 package.

Before running the computations, we execute a missing values analysis to test if cases with missing values were missing at random or not. The results indicate that the data do not appear to be missing completely at random. Most of the variables have more than 5% missing values cases; therefore we opt not to drop cases but instead impute missing values. This is supported by the literature (Little & Rubin, 2002; Garson, 2009). Case deletion strategies as Garson (2009) noted “assume that the deleted cases are a relatively small proportion of the entire dataset and are representative of it”, but research reveals that in a number of cases missing data are indicative of some pattern and cannot safely be assumed to reflect randomness. Deletion, therefore, can introduce substantial bias into the study and the loss in sample size can significantly diminish the statistical power of the analysis (Garson, 2009). Thus for the purposes of data analysis we impute values to replace missing values using the Expectation Maximization (EM) algorithm in the SPSS Missing Values option. We employ the EM method because it makes fewer demands of the data in terms of statistical assumptions and provides excellent parameter estimates (Garson, 2009; Graham, 2009).

The main theoretical constructs of the study were measured on multi-item scales. We used the seven-point Likert-type scale to measure KIO defining factors. A sample item is: “The majority of workers in a KIO have high cognitive skills” (“1”=“strongly disagree”; “7”=“strongly agree”). In addition respondents completed the measures for KIOs and non-KIOs using a five-point Likert-type scale e.g., “law firms” (“1”=“not at all knowledge-intensive”; “5”=“most knowledge-intensive”). For each of the constructs, scale scores were computed as the means of the individual items. We conducted a reliability analysis to verify the construct and scale validities of the survey. Specifically, Cronbach’s alpha was used to determine whether items based on the average inter-item correlation, are sufficiently interrelated to justify their combination as a construct. Typically, reliability coefficients of 0.7 or greater are considered adequate. The scales that exhibit reliability values greater than 0.7 can therefore, be accepted straightaway. In this study, Cronbach’s alpha measure of reliability for the KIO defining factors construct was 0.851 and for the KIO/non-KIO construct was 0.879.

In the first steps of computation the objective is to identify, by means of cluster analysis, homogeneous classes of KIOs or non-KIOs. We perform a cluster analysis, a methodology that takes a sample of elements, in this case firm types, and group them such that the statistical variance among elements grouped together is minimized while between-group variance is maximized. Cluster analysis has most frequently been employed as a classification tool. The basic criterion for any clustering is nearness (or similarity). Objects that are near each other should belong to the same cluster, and objects that are far from each other should belong to different clusters. Cluster analysis particularly fits the objectives of this study, since it places objects into groups suggested by the data. However, clustering techniques can be criticized since by their nature they will break the data available into subsets, however weak the association among data points (Ketchen and Shook, 1996; Hair et al., 1992). For this study, therefore, we employ two clustering methods, each of which has been found to have somewhat different strengths and weaknesses. If both clustering methods give similar results using multiple criteria, confidence that the groups are an inherent part of the data and not abstract creation of the particular clustering algorithm is increased. The cluster analysis is carried out using the Pearson correlation coefficient as the measure of similarity. We decide to standardize all variables by using the z-scores so that variables with large units could not be overemphasized.

The first clustering technique we use, the Complete Linkage (furthest neighbor) centroid method, maximizes the distance between group means, recomputing the centroids each time a new observation is included in a cluster. A shortcoming of this methodology is its dependence on the researcher's choices (Hair et al., 1992). But it is considered a more robust method "to outliers than most other hierarchical methods" (Reger and Huff, 1993, p109). Ward's method is used as the second technique. For this method groups are formed by minimizing the within-cluster ANOVA sum of squares. The aim "is to join cases into clusters such that the variance within a cluster is minimised" (Field, 2000). With this technique Ward's method tends to join clusters with a small number of observations and is strongly biased toward producing clusters with roughly the same number of observations (Reger & Huff, 1993).

The second step of computation is aimed at verifying, by means of association analysis, the existence/non-existence and the intensity of the relationship between the KIO defining factors and firms types. The literature suggests that KIOs might have multiple defining factors or characteristics. As a result we feel that only examining singular causes and effects of factors on KIOs may distort the complex reality of these organizations. We agree with Fish (1988) who pointed out that when data is analysed using univariate methods important multivariate relationships can be missed. Consequently, we employ the Canonical Correlation Analysis (CCA), a multivariate analytic method, as a way to explain the relation of KIO firm types and defining factors sets of variables. CCA is a multivariate technique that enables us to investigate variables that possibly have multiple causes and multiple effects. It is the correlation of two canonical variables, one representing a set of independent variables, the other a set of dependent variables, which in our study refers to KIO most defining factors and firm type variables respectively. For this study, therefore, CCA examines the relationship between a linear combination of the set of KIO defining factors variables and a linear combination of the set of firm type variables. The purpose of CCA is not to model the individual variables, but to measure the linear relationship between the two multidimensional variables. In other words we employ canonical correlation to explain the relation of the two sets of variables, not to model the individual variables. We not only care about whether there is a relationship between defining factors and KIOs, but we are also interested in knowing

what defining factors are more or less useful in modelling KIOs and whether they relate to each other in expected directions. Thus we ask the basic question whether KIO most defining factor variables are predictive of certain knowledge-intensive firm types. More importantly, the use of CCA reduces the probability of us committing a Type 1 error sometimes referred to as the “experimentwise error” (Thompson, 1991). Dependent variables, just as independent variables, as Thompson (1991) noted “can interact with each other to create effects that would go unnoticed, absent a multivariate analysis”. Thus since we are testing multiple dependent variables there is a high probability that an "experimentwise" error is likely, but it is difficult for us to know which of the statistically significant results errors are and which are not. Multivariate methods, therefore, minimizes the risk of this error by allowing simultaneously considerations of the full network of variable relationships, and as a result honouring the reality in which all the variables can and often do simultaneously interact and influence each other (Thompson, 1991).

For the CCA the predictor variable set contains six measures representing the factors identified from the literature as the factors most defining of KIOs, i.e., ‘workers use novel knowledge to solve complex problems’, ‘a worker is held highly accountable for decisions’, ‘workers have high cognitive skills’, ‘organization produces & sells knowledge’, ‘organization’s core assets are its people’, and ‘organization is accredited by a self regulated body’. The criterion variable set contains eight measures representing KIO firm types as presented in the cluster analysis results, i.e., law, drug discovery, management consulting, software development, medical practices, biotech research, architecture, and computer consulting firms.

Analysis and Results

General Observations

A total of 129 KM professionals responded to the survey. It could be argued that many KM professionals did not take part in the study. Table 1 presents research data that supports external validity, showing the number of respondents as representative of the population. It is our assessment, therefore, that with regards to external validity conditions were met and thus the sample selected can be generalized and will prove useful to our understanding of the determinant factors of KIOs as an organizational type.

Table 1

Research Data Overview	
FACTOR	DETAIL
Universe	Knowledge management professionals who are familiar with the concept knowledge intensive organization or knowledge intensive firm.
Geographic Coverage	Global.
Data Collection	Online survey using Opinio survey system.

Method	
Sample unit	Knowledge management professionals.
Population census	4 000
# of respondents	129
Sample error	8.6 per cent
Confidence Level	95 per cent; $z=1.96$; $p=0.05$
Survey procedure	The online survey was posted on the discussion/message boards of 4 KM professional virtual groups, KMPro, ICTKM, KMCI, and Toolbox for IT. Messages were also emailed to 3 KM professionals' listserves, KMPro, ACTKM, KMDG and BUSLIB.
Data collection duration	The survey was launched in late November 2009 and closed in late January 2010.

Cluster Analysis

The dendrogram (see Figure 1) and Table 2 below show cluster analysis results of a 3-cluster solution for the Complete Linkage and Ward clustering methods. The dendrogram gives a picture of how great the distance is between groups that are clustered in a particular step using a 0 to 12 scale along the top of the chart. As depicted in Figure 1 firms are initially split in two distinct groups. Group 1 includes drug discovery, management consulting, architecture, software developing, law, medical practices, biotech and computer consulting and group 2 includes landscaping, construction, breweries, call centres, accounting, employment agencies, food manufacturing firms, hotels & motels, apparel stores, and oil & mineral exploration companies. In actual fact, if we refer to the literature on KIOs, this first separation has divided up firms into KIOs and non-KIOs. There does not seem to be any controversy therefore, among KM professionals that firms can be divided into two groups of KIOs and non-KIOs. One interesting observation is the placement of accounting firms in the non-KIO group. In the literature accounting firms are constantly identified as knowledge-intensive but the results reveal that there might be an oversight in this identification. As Robertson & Swan (1998) argued, "some consultancies (for example, general accounting) deal mainly with the diffusion of widely applicable, standardized and generic solution" (p. 544), and thus it is questionable whether these kinds of consultancies are knowledge-intensive. This assertion is therefore confirmed by the study results.

Figure 1

The Dendrogram

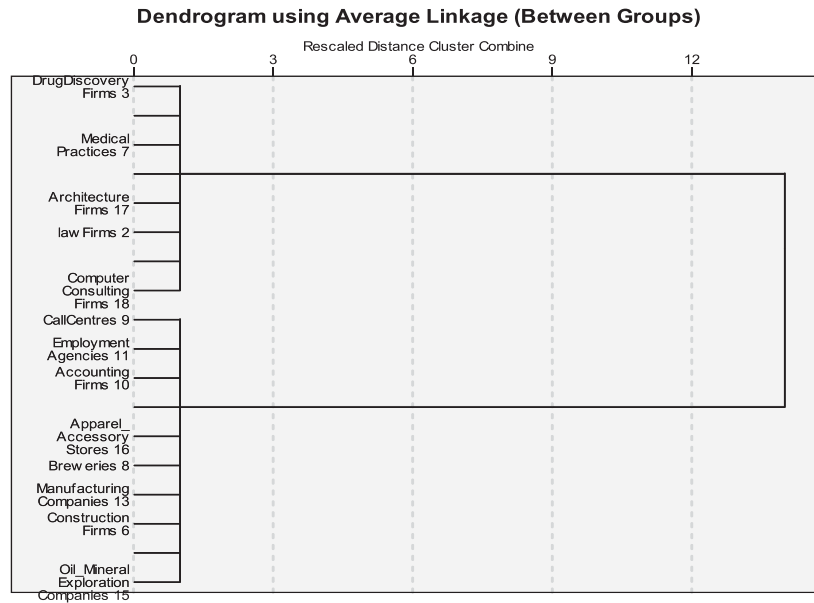


Table 2 below depicts the cases in each cluster. Landscaping, construction, breweries, food manufacturing firms, hotels & motels, and apparel stores have been placed in one cluster; law, management consulting, biotech, architecture, computer consulting, drug discovery, medical practices, and software developing firms in a second cluster; call centres, accounting, and employment agencies are in the third cluster. Oil and mineral exploration firms are the only ones not clearly associated. Using the Complete linkage they are in cluster 2 and with Ward clustering they are in cluster 1.

Table 2

Complete Linkage Cluster and Ward Cluster Membership

Case	Complete Linkage Clusters	Ward Clusters
landscaping	1	1
construction	1	1
breweries	1	1
food manufacturing	1	1
hotels & motels	1	1
apparel stores	1	1
law	2	2
drug discovery	2	2
management consulting	2	2
software developing	2	2
medical practices	2	2
architecture	2	2
computer consulting	2	2
biotech	2	2

Case	Complete Linkage Clusters	Ward Clusters
call centres	3	3
accounting	3	3
employment agencies	3	3
oil & mineral exploration	2	1

All in all for the rest of the firms both analyses point to the same conclusion. In short both cluster analysis techniques used in this study have revealed that firms can be grouped into distinctive clusters according to their knowledge-intense or non-knowledge-intense defining factors which seem to be related to the organizational classifications alluded to in the literature. But the question remains, what defining factors contribute to this distinct division of firms? What is needed at this juncture is an instrument to measure the degree of knowledge intensity in particular firms and which factors contribute to this intensity.

Defining Factors Descriptive Statistics

First we look at the descriptive statistics results. Respondents were asked to respond to each given defining factor in terms of how descriptive it is of a KIO -- where "KIO" refers to the whole organization and not just a department or unit within the organization. The KIO defining factor questions were given in two different sets, (1) worker related factors, and (2) Organizational related factors. Characteristics of the distributions of the answers were obtained by calculating means and standard deviations for each factor in the different sets (see Table 3 and 4). The responses with the highest average response score represented strongest agreement and thus indicated that the category that the question represented was obviously more important than other categories in that set.

Table 3

Descriptive Statistics for Worker Related Factors

Worker Related Factor	N	Mean	Std. Deviation
The majority of workers in a KIO have high cognitive skills	129	5.61	.892
In a KIO a worker is held highly accountable for their decision	129	5.49	.979
The majority of workers in KIOs perform complex, unique, and dynamic tasks	129	5.45	1.025
The majority of workers in KIOs have high worker autonomy (independence)	129	5.31	.986
The majority of workers in KIOs are considered experts of their domain	129	5.19	1.106
The majority of workers in a KIO use novel knowledge to solve complex problems	129	5.07	.971

Worker Related Factor	N	Mean	Std. Deviation
The majority of workers in a KIO have formal education and experience equivalent to an undergraduate degree.	129	4.88	1.338
The majority of workers in a KIO have formal education and experience beyond an undergraduate degree, such as a law degree, an MBA, or advanced professional designations	129	4.79	1.361
The majority of workers in a KIO belong to, or are accredited by, a professional group.	129	4.37	1.266
The majority of workers in a KIO have formal education and experience equivalent to a doctoral degree.	129	3.27	1.338
Valid N (listwise)	129		

From Table 3 we see that respondents felt that cognitive skills, decision accountability, and performing complex, unique and dynamic tasks, were the top key worker related defining characteristics for KIOs. It is interesting to note that education related factors are ranked low as defining elements of a KIO, especially the fact that formal education and experience equivalent to a doctoral degree was ranked last in contrast to what the literature says.

Table 4

Descriptive Statistics for Organizational Related Factors

Organizational Related Factor	N	Mean	Std. Deviation
A KIO's core assets are its people	129	6.15	.916
A KIO's organizational network can be defined as large & complex (extends both inside and outside the organization)	129	5.87	.888
A KIO's core factor for success is innovation.	129	5.69	.922
A KIO acquires status and power from creative achievements.	129	5.60	.926
In a KIO an expert worker's decision highly impacts the organization's success.	129	5.49	.939
A KIO is highly dependent on individual expertise	129	5.18	1.199
A KIO produces and sells knowledge	129	4.78	1.201
A KIO's production consists of complex non-standardized problem solving.	129	4.68	1.284
In a KIO top and middle managers have fewer opportunities to exercise direct supervision and control.	129	4.26	1.277
A KIO is accredited by a self-regulated body.	129	4.21	.960

	9		
Valid N (listwise)	12		
	9		

The top organizational related factor defining a KIO according to the respondents is people as the organization's core assets (see Table 4). In addition, the size of a KIO's network, core factor for success is innovation, and organization acquires status and power from creative environments, are ranked highly. It is interesting however, to note that the statement that 'a KIO produces and sells knowledge' is not ranked as highly as is presented in the literature. But from the descriptive statistics presented in tables 3 and 4, it is impossible to tell whether the factor differences are real or are due to chance variation. We then checked the test statistics to be sure.

Canonical Correlation Analysis (CCA)

A canonical correlation analysis was computed using six defining factor variables, (i.e., factors identified in the literature as the factors most defining of KIOs), as predictors of the eight firm type variables to evaluate the multivariate shared relationship between the two variable sets (KIO firm types and most defining factors). Table 5, 6, 7, and 8 presents the output of the CCA results.

Table 5

Statistical Significance Tests for the Full CCA Model

Effect ... Within Cells Regression Multivariate Tests of Significance (S = 6, M = 1/2, N = 56 1/2)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	0.82982	2.40750	48.00	720.00	0.000
Hotellings	1.17861	2.78282	48.00	680.00	0.000
Wilks	0.37558	2.61463	48.00	569.91	0.000
Roys	0.39656				

As presented in Table 5 above collectively the full model across all functions is statistically significant, using the wilks's $\lambda = 0.376$; $p < 0.001$. Wilks's λ represents the variance unexplained by the model. As a result by computing $1 - \lambda$ we get the full model effect size in r^2 metric. Hence, we compute the overall effect size ($1 - \lambda$) and find an overall effect of 0.624 for the full model. This indicates that a substantial portion, about 62%, of the variance shared between the variable sets is explained by the full model. Accordingly we can reject the null hypothesis that there is no relationship between the variable sets and conclude that there probably is a relationship.

Table 6

Canonical Correlations for Each Variable Separately

Eigenvalues and Canonical Correlations

Root No.	Eigenvalue	Pct.	Cum. Pct.	Canon Cor.	Sq. Cor
1	0.65717	55.75856	55.75856	0.62973	0.39656
2	0.27965	23.72715	79.48571	0.46748	0.21854
3	0.16984	14.41053	93.89624	0.38103	0.14518
4	0.04094	3.47366	97.36991	0.19832	0.03933
5	0.02854	2.42152	99.79142	0.16658	0.02775
6	0.00246	0.20858	100.00000	0.04952	0.00245

The analysis, as depicted in Table 6, yields six functions with squared canonical correlations of 0.397, 0.219, 0.145, 0.039, 0.028, and 0.003 for each successive function. An examination of each of the functions reveals that the first three functions explain 39.66%, 21.85%, and 14.52% of the variance within their functions, respectively. It is important to note that functions four, five and six each explained less than 10% of the variance in their functions (3.93%, 2.78%, and 2.45%, respectively), and therefore may not be noteworthy or replicable in future studies.

Table 7

Hierarchical Statistical Significance Tests

Dimension Reduction Analysis

Roots	Wilks L.	F	Hypoth. DF	Error DF	Sig. of F
1 TO 6	0.37558	2.61463	48.00	569.91	0.000
2 TO 6	0.62240	1.67184	35.00	490.40	0.011
3 TO 6	0.79645	1.14990	24.00	409.37	0.285
4 TO 6	0.93172	0.56422	15.00	326.15	0.901
5 TO 6	0.96987	0.45861	8.00	238.00	0.884
6 TO 6	0.99755	0.09833	3.00	120.00	0.961

Table 7 presents a reduction analysis in which the hierarchical statistical significance tests are presented. The dimension reduction analysis allows us to test the hierarchical arrangement of functions for statistical significance. The results show the full model (Functions 1-6) as statistically significant ($p=0.000$) as well as the cumulative effects of functions 2 to 6 ($p=0.011$). The cumulative effects of functions 3 to 6, 4 to 6, and 5 to 6 are not statistically significant. In addition function 6 (the only function tested in isolation) is not statistically significant. Interestingly, although function 3 is found to be significantly contributing to the explanation of the relationship between the variable sets, i.e., explaining 14.52% of the variance within its function, at the cumulative level, the total solution is not statistically significant and perhaps not that noteworthy after all. Further investigations are therefore warranted for this function. Therefore given the squared canonical correlation effects for each function, only the first two functions are considered noteworthy in the context of this study (39.66% and 21.85% of shared variance, respectively). We can therefore conclude that there is indeed a noteworthy relationship between our variable sets and this relationship is mostly captured by the first two functions in the canonical model.

But the question still remains. What variables are contributing to this relationship between the variable sets across the two functions? Identification of the contributing variables can be critical to our accepting or refuting the null hypothesis, “there are no clear and outright factors that distinguish KIOs”. We want to be able to say, in terms of degree and directionality, what defining factors variables were related to what KIO variables in this analysis. To help answer this question we therefore looked at the standard weights and structure coefficients results. The analysis above has revealed that the relationships in our model are largely captured by Functions 1 and 2. Our interest is now focused on these two functions.

Consequently, Table 8 presents the standardized canonical function coefficients (weights) and structure coefficients for Functions 1 and 2. The squared structure coefficients are also given as well as the communalities across the two functions for each variable. We view communalities as an indication of how useful the variable was for the solution. The communality coefficients aid in determining which variables are not contributing at all to the CCA solution. For emphasis, we underline in Table 8 communalities above 45% revealing variables with the highest level of usefulness in the model. We also underline structure coefficients above 0.45.

Table 8

Canonical Solution for Defining Factors Predicting KIOs for Functions 1 And 2

<i>Variable</i>	<i>Function 1</i>			<i>Function 2</i>			<i>Comm. coef (%)</i>
	<i>Coef</i>	<i>Structure coef</i>	<i>Sq. structure coef (%)</i>	<i>Coef</i>	<i>Structure coef</i>	<i>Sq. structure coef (%)</i>	
law	- .28750	<u>-.73431</u>	53.92	- .39316	-.16155	2.61	<u>56.53</u>
drug discovery	- .30066	-.27539	7.58	.78747	<u>.62530</u>	39.1	<u>46.68</u>
management consulting	- .53913	<u>-.77124</u>	59.48	.43397	-.18298	3.35	<u>62.83</u>
software developing	- .11835	<u>-.64235</u>	41.26	- .80678	-.01106	0.01	41.27
medical practices	- .23645	<u>-.66609</u>	44.37	.30329	<u>.45532</u>	20.73	<u>65.43</u>
computer consulting	- .14057	<u>-.45186</u>	20.42	.25933	.37043	13.72	34.14
architecture	- .15611	<u>-.57346</u>	32.89	.44324	.20070	4.03	36.92
bio-tech Research	.36602	-.26302	6.92	- .19577	.17616	3.10	10.02
Sq. Cor			39.66			21.85	
workers use novel knowledge to solve complex problems	- .11072	<u>-.55657</u>	30.97	.54281	<u>.68552</u>	46.99	<u>77.96</u>
worker is held highly	-	<u>-.48500</u>	23.52	.29258	<u>.49873</u>	24.87	<u>48.39</u>

accountable for decisions	.01556						
workers have high cognitive skills	- .35996	<u>-.88184</u>	77.76	.07795	<u>.56423</u>	31.84	<u>109.6</u>
organization produces & sells knowledge	- .77178	<u>-.52327</u>	27.38	- .76942	.28167	7.93	35.31
organization's core assets are its people	.17223	-.12009	1.44	.30871	.35767	12.79	14.23
organization is accredited by a self regulated body	- .13595	<u>-.55503</u>	30.81	.24711	-.34136	11.65	42.46

Note. Structure coefficients greater than 0.45 are underlined. Community coefficients greater than 45% are underlined.

Coef = standardized canonical function coefficient; structure coef = structure coefficient; sq. structure coef = squared structure coefficient; comm. coef = communality coefficient.

An analysis of the Function 1 coefficients presented in Table 8 reveals that relevant dependent variables are primarily law, management consulting, software developing and medical practices, with architecture and computer consulting firms making secondary contributions to the synthetic dependent variable. This conclusion is supported by the squared structure coefficients which show the amount of variance the observed variable can contribute to the synthetic dependent variable. These KIOs also tend to have larger canonical function coefficients, with management consulting exhibiting the largest canonical function coefficient. Notably, law and medical practices have modest function coefficients but large structure coefficients while software developing, computer consulting and architecture firms have rather small function coefficients but large structure coefficients. This result can be due to the multicollinearity that these variables have with the other dependent variables. Interestingly, drug discovery and bio-tech research firms are revealed as having very limited contributions to the dependent variable, contributing only 7.58% and 6.92% respectively, to the variance. Nevertheless, all of these variables' structure coefficients have the same sign, indicating that they are all positively related.

Regarding the independent (predictor) variable set in Function 1, 'workers have high cognitive skills' defining factor variable is the primary contributor to the predictor synthetic variable, with secondary contributions by 'workers use novel knowledge to solve complex problems', 'worker is held highly accountable for decisions', 'organization produces & sells knowledge' and 'organization is accredited by a self regulated body'. In addition all these defining factor variables are positively related to the firm type variables. These results are generally supportive of the theoretically expected relationships between the defining factors and KIOs, i.e., both worker related factors and organizational related factors contributing equally to knowledge-intensiveness in KIOs. We therefore label this Function 1 as "worker/organization KIOs".

An analysis of Function 2 coefficients in Table 8 reveals the only depended variables of relevance as drug discovery firms and medical practices. These firms are positively related on this function. With regards to the defining factors 'workers use novel knowledge to solve complex problems' is now the dominant predictor, along with 'workers have high cognitive skills' and 'worker is held highly accountable for decisions'. These defining factor variables

are also positively related on this function. Looking at the structure coefficients for the entire function, we see that ‘workers use novel knowledge to solve complex problems’, ‘workers have high cognitive skills’ and ‘worker is held highly accountable for decisions’ are positively related to drug discovery firms and medical practices. Given that only worker related factors, ‘workers use novel knowledge to solve complex problems’, ‘workers have high cognitive skills’ and ‘worker is held highly accountable for decisions’ are the predictors and drug discovery firms and medical practices depended variables were the dominant contributors we label this function “worker-driven KIOs”.

Conclusion and Implications to KM

Drawing from the theoretical literature on knowledge intensive organizations, this paper makes two major contributions. First it demonstrates that as presented in the prevailing theoretical propositions, organizations can generally be divided into two groups - KIOs and non-KIOs. The KIO classification is positively associated with management consulting, law, medical practices, drug discovery, software developing, computer consulting, and architecture firms. This relationship, however, did not hold for bio-tech research firms, which the CCA revealed as being not statistically significant and having limited contribution to the canonical model, an interesting result to note. We can therefore conclude that according to our community of study KIOs exist as a distinct organizational type that is mostly exemplified by organizations such as management consulting, law, medical practices, drug discovery, software developing, computer consulting, and architecture firms.

Second, from the results of this study there appears to be some clear and outright factors that differentiate KIOs from non-KIOs. KIOs are positively associated with ‘workers have high cognitive skills’, ‘workers use novel knowledge to solve complex problems’, ‘worker is held highly accountable for decisions’, ‘organization produces & sells knowledge’ and ‘organization is accredited by a self regulated body’ defining factor variables. This research also points to two critical dimensions of knowledge intensity defining these organizations, i.e. the worker dimension and organizational dimension as is presented in the literature. As presented, knowledge-intensity in organization can best be defined by the worker related factors as well as organizational related factors. The degree of knowledge-intensity distinction is contingent on the fit between the organizational defining factors and worker elements. The results from the CCA Function 1 analysis, for instance, show that there are KIOs that are best defined by a somewhat 50-50 balance between organization and worker related factors as exemplified by law, management consulting, software developing and medical practices which are depicted as the most relevant dependent variables. In Function 2, on the other hand, we identify a group of KIOs that can best be defined by mostly worker related factors, i.e., drug discovery firms and medical practices. All in all the identification of the two important dimensions defining knowledge-intensity, therefore, supports the relevance of both worker and organizational related factors for advancing understanding regarding research on knowledge management in KIOs. Of critical importance to KM is the relationship between the knowledge-intensity defining factors and the systematic development and evaluation of KM tools in KIOs. Most importantly, from a knowledge management perspective, this underscores the importance of the relations between workers, the community (organization) of which they are members and the conceptions the workers have of their activities as presented in the theory of organizations as activity systems (Blackler, 1993). While the importance of knowledge has often been demonstrated within work groups or for particular

organizational processes, here it is regarded as a basis for analyzing the organization as an organization.

It should be noted that this research has some limitations. The study focussed on a few of the types of organizations drawn from the literature which may limit the generalizability of the results. However, restricting the study to the core organizations identified in the literature provided us with leverage for an in-depth empirical exploration of these organizations' characteristics. Future research might extend this research to other types of organizations, perhaps focus on representative samples of both service organizations and manufacturing organizations. Considering its limitations, a major strength of this study is that we were able to collect data from professionals from all over the world provided the respondent was able to communicate in English, thus reducing the threat of single-country bias. We also note that the use of a single group of key informants, i.e., people who consider themselves to be knowledge management professionals and are familiar with the concept KIO, provides an important advantage to our study, a "high probability that the most knowledgeable informant is providing data" (Doty et al., 1993, p 1210).

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Management Education - Formation en Gestion

ASB 2010
Halifax, Nova Scotia

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EVIDENCE BASED MILLENNIALS

The workforce is changing, as Boomers are retiring and being replaced by Millennials. This paper explores how organizations can best prepare to train Millennials in new, or existing, initiatives, in an effort to increase successful adoption, by the younger workforce.

Introduction

Temporarily eclipsed by the financial crises of 2008, and subsequent recession, is the pending shortage of skilled employees that is expected to take place as the Baby Boom generation exits the workforce. While the recession has degraded many retirement plans, potentially resulting in some Boomers extending their time in the workforce, the truth is they cannot delay the inevitable indefinitely. How will the workforce cope with the exodus of Boomers, when the time comes? The replacement for the Boomers will come from the millennial generation; the transition has already begun with early Boomers leaving the workforce and early Millennials entering it.

In parallel with the introduction of the new workforce, of Millennials, is a growing interest in a new way of management – evidence-based management. The focus of this paper is to consider the implications the learning styles of the new workforce, consisting of the millennial generation, and their likely response to the adoption of evidence-based management practices by organizations. Attention is drawn to the learning styles and characteristics of Millennials, which may conflict with the objectives of evidence-based management, and opportunities to address the challenges posed by conflicts are proposed through implementation techniques that compliment the learning preferences of the millennial generation.

The New Workforce

Workforce Generations Defined

Generational boundaries define a period of time when a cohort of people share common life experiences, which serve to define the cohort. While people from across generations experience the same events, the experience and influence of these events uniquely affect each generational cohort (Howe & Strauss, 2000; Johnson & Romanello, 2005; Mangold, 2007). It is important to note that there are no specific scientific criteria for defining generational cohorts, and as a result the specific dates used as generational boundaries tend to vary by a few years from researcher to researcher. The significant generational cohorts currently in the workforce include the Baby Boomers, Generation X, and the Millennials, and as noted by Paula Allen (2004) managing these distinct groups will be “*the primary challenge for businesses*” (p. 51).

Baby Boomers, or Boomers, are generally classified as those people born between approximately 1945 and 1965, the children of the post world war era (Howe & Strauss, 2000; Johnson & Romanello, 2005; Jonas-Dwyer & Pospisil, 2004; Mangold, 2007; Manuel, 2002; Foot & Stoffman, 1996; Bennis & Thomas, 2002; Alsop, 2008). Significant life events that bond this cohort include the Vietnam War, assassinations of historical figures JFK and Martin Luther King, man walked on the moon, the Civil Rights Movement, and Watergate (Alsop, 2008). Another significant event, perhaps the most defining of this cohort, is the sheer size of the population belonging to it, thus the number of people born during this period is itself a significant event shared by the members of the Baby Boomer cohort (Bennis & Thomas, 2002). These shared experiences resulted in a generation characterized by common traits such as being competitive, committed and loyal to employer, their sense of identity and self-worth is linked to their jobs, and they are materialistic with a tendency to buy on credit (Alsop, 2008; Mangold, 2007; Johnson & Romanello, 2005). In the workforce, Boomers generally hold positions of seniority and often positions of power, which have generally been achieved through their hard work and commitment to the organization. This is also the group of individuals on the cusp of retirement, which is expected to have a significant impact on the labor force - the departure of the majority of the experienced senior workers from organizations.

Generation X, or Gen X, are classified as those people born approximately between 1965 and 1980, the children of early boomers and late Silent generation parents (Alsop, 2008; Foot & Stoffman, 1996; Howe & Strauss, 2000; Jonas-Dwyer & Pospisil, 2004; Smola & C. D. Sutton, 2002). Significant life events that bonds this cohort include the beginning of the AIDs epidemic, Tiananmen Square killings, the fall of the Berlin wall and an end to the cold war, Chernobyl nuclear accident and the explosion of the Challenger space shuttle (Alsop, 2008; Oblinger, 2003; Johnson & Romanello, 2005). These events have played a part in the development of GenXers leading to a generation characterized by self-reliance,

resourcefulness, adaptability, cynicism, with a distrust of authority and desire to define themselves as contrary to their parents (Alsop, 2008; Johnson & Romanello, 2005). Generation X could be considered a middle child, sandwiched between the much larger generational cohorts of older Boomers and younger Millennials. Generation X has had to work for their positions and to define their position and relevance in the workforce and economy.

Millennials, also referred to as Generation Y, Gen Y, Generation Next, the Net Generation, Nexters, Echo Boomers, and the Nintendo Generation, (Gardner & Eng, 2005; Howe & Strauss, 2000; Mangold, 2007; Partridge & Hallam, 2006) are generally classified as the cohort born between approximately 1980 and 2000 (Alsop, 2008; Howe & Strauss, 2000; Partridge & Hallam, 2006; Smola & C. D. Sutton, 2002; Spiro, 2006; Jonas-Dwyer & Pospisil, 2004). Significant life events that bonds the Millennial generation include the shootings at Columbine High School, Princess Diana's death, O.J. Simpson trial, Rodney King riots, the Lewinsky scandal, September 11, major corporate scandals including Enron and WorldCom, Hurricane Katrina, and the war against terrorism (Alsop, 2008; Howe & Strauss, 2000; Johnson & Romanello, 2005; Mangold, 2007). These shared events contributed to the development of a generation characterized by their helicopter parents, feelings of entitlement, optimism, civic minded, team oriented, structured, technologically savvy, multi-taskers, and impatience (Alsop, 2008; Johnson & Romanello, 2005; Jonas-Dwyer & Pospisil, 2004; Partridge & Hallam, 2006; Spiro, 2006).

It is worth noting that the characteristics commonly cited as defining the millennial generation do not appear to be supported in the literature by direct empirical evidence. In the absence of such detailed empirical analysis the general consensus remains that these characteristics generally reflect the millennial cohort's attitudes and beliefs.

The concept of the New Workforce then is representative of the changing of the guard, with the departure of the older Boomers and introduction of the younger millennial generation. The significance of the New Workforce lies not only in the variation in the attitudes and beliefs that the generational cohorts are defined by, but rather these characteristics have implications due to the size of the transition between the oldest and youngest cohorts in the workforce. The implication of Generation X's entry to the workforce was not as significant as the expected transformational nature of the millennial generation's entry. This is likely due to the relatively small size of Generation X, in comparison to the larger Boomer and Millennial generations.

With the rise of this new workforce, the significance of the attitudes the millennial cohort will bring to the workplace cannot be understated. A key focus of this paper is on the millennial generation's attitudes and preferences towards learning, because as the Millennials enter the workforce they will be learning, formally and informally, how the organization operates and organizations with a desire to influence their new workforce, should understand the techniques which are most likely to have a positive impact on the learning experience of the employee.

Millennial Learning

If the learning styles and preferences of new employees impact how they respond to learning in an organizational context, such as orientation programs or new corporate initiatives to

change how work is performed, then it is important for employers to attempt to accommodate those learning styles to maximize the effectiveness of these programs and initiatives. Millennials will represent the largest segment of the population entering the workforce for the next decade, and over that time will grow to represent the majority of employees within organizations, as Boomers are expected to retire from the workforce. It is thus likely that the majority of learning within organizations will take place among the millennial generation, so organizations should familiarize themselves with the learning styles and preferences of Millennials to ensure a fit between how organizational information is disseminated and training programs are implemented for employees.

To examine the learning styles and preferences of the New Workforce, a review of studies conducted, on millennial student learning styles and preferences in undergraduate university settings will be helpful. In many respects the most effective teaching techniques are applicable across generations. Active learning is identified as one of the *Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1987). These seven principles were established on the basis of research on teaching practices spanning five decades, which means each principle is equally applicable across generations, from the Boomers to Millennials.

Although active learning has long been associated with good teaching practices, it has been during the school years of the millennial generation that it has begun to be incorporated into the education system. Thus it is understandable that while a Boomer may theoretically learn better when engaged with active learning techniques, it is more likely that they have adopted a preference for the traditional lecture teaching style that was characteristic of their formal education. It is also likely that Boomer and GenX managers are apt to transfer knowledge to others in accordance to their personal learning preference; a preference which may not be in line with the recipient's preferred learning style. Johnson and Romanello (2005) categorized the generational learning styles and activities by generation:

The learning styles and preferences identified by Johnson and Romanello (2005) are echoed by other researchers (Jonas-Dwyer & Pospisil, 2004; Partridge & Hallam, 2006).

Jonas-Dwyer and Pospisil (2004) derived five learning preferences (Technology, Entertainment and Excitement, Teamwork, Structure, and Experiential Activities) of the millennial generation, based upon the defining messages, events, and resulting generational characteristics, of the cohort. Kate Manuel (2002) provides additional analysis on the millennial learning styles, noting that in addition to desiring collaborative learning Millennials prefer to learn from peers, consider "peers more credible than teachers" (p. 208) and resist "memorization and busywork" (p. 206).

Millennials do not just have different learning styles and preferences than earlier generations; Kara Mangold (2007) notes that they also place more value on the knowledge of how to acquire information than the source knowledge itself. So in the New Workforce it will be more important to educate employees on how to find information within the organization, than it is to bring the source information directly to employees.

Table 1

Generational Learning Styles and Activities

Generation	Learning Style / Preferences / Characteristics	Examples of Generation-appropriate Learning Activities
Baby Boomers	<ul style="list-style-type: none"> • Contact with faculty • Lecture • Learn best when their wealth of personal experience can be tied to the subject matter • Want to learn in a caring environment • Enjoy positive reinforcement for their efforts 	<ul style="list-style-type: none"> • Lecture • Detailed handouts • Note-taking • Write a personal story related to content
Generation X	<ul style="list-style-type: none"> • Learn quickly and efficiently • Only want to learn what will benefit them directly • Do better when they learn on their terms • Enjoy flexible learning times • See class assignments as something necessary to obtain their degree but it is different from work that is necessary to get the job the desire 	<ul style="list-style-type: none"> • Distance learning courses • Programmed instruction done independently, at their own pace, on their own time • Detailed study guides and test reviews that focus on what they will be tested.
Millennials [sic]	<ul style="list-style-type: none"> • Enjoy working in groups: teamwork • Use technology whenever possible • Experiential activities • There is zero tolerance for delays • Strengths are multitasking, goal orientation, positive attitudes, collaborative style • Learn immediately from their mistakes (as they did when playing a Nintendo game) 	<ul style="list-style-type: none"> • Simulations with immediate effect on how the student did • Group activities; solving a problem or answering questions to a case study in a small group • Creative, innovative interactive exercises • A Jeopardy-style game, played with teams for a test review

(Johnson & Romanello, 2005, p. 215)

The Millennials’ “zero tolerance for delays”, was first identified by Jason Frand (2000) and later echoed by Diana Oblinger (2003), Johnson and Romanello (2005), and Mangold (2007). In Frand’s (2000) assessment the Millennials’ intolerance for delays goes beyond the basic human desire for instant gratification due to the 24x7 digital environment of the information-age, in which the millennial was born. Most Millennials would not remember a time when

they could not obtain cash from a bank machine or pay bills online 24x7; is it any wonder they expect to receive what they want, when they want it? The implication of this trait, with respect to learning in an organizational context, is that employees will begin demanding access to the information they need when they want to access it. In other words it can be expected that new employees entering an organization will expect their immediate supervisor, peers, or HR manager to provide answers to their inquiries, as they familiarize themselves with the environment. Failure to have the answers, or required information, readily available and accessible to these employees could impact their early impressions of the organization and the competence of the individual who was unable to fulfill the request.

Frand (2000) raises concern over the blurring of the consumer/creator role, because “*there is no distinction between the owner, the creator, and the user of information*” (p. 22). While this may seem to be a concern more aptly reflected in a paper about the evolution of copyright legislation, it is related to the millennial attitude towards learning, because failure to recognize the importance of the various roles in the production of information and knowledge, as part of the learning process, could lead to a devaluation on the importance placed on the credibility of the creating source of that information.

As noted earlier, some researchers have also classified Millennials as the Nintendo Generation, in reference to the growth of video game play, which has matured with this cohort. The Nintendo reference is aptly placed, when one considers the influence video games has had on the learning preferences of Millennials. Mangold (2007) notes that Millennials “*have learned through trial and error (i.e., video games), where persistence pays off and reading the manual is not very helpful*” (p. 22). The trial and error persistence required in video game play can thus be associated with their learning preferences to use technology and learn immediately from their mistakes (Johnson & Romanello, 2005). While there is value in employees learning from their mistakes and chalking it up to experience, the cost of doing so when the information and knowledge necessary to avoid those mistakes is readily available may be costly to organizations.

Evidence Based Management

Introduction

It is important for organizations to understand how employees learn, especially in a knowledge-based economy. It is also important for organizations to understand how the organization, as an entity, learns and makes decisions. As Jeffrey Pfeffer and Robert Sutton (2006) note “*practitioners sometimes neglect to seek out new evidence because they trust their own clinical experience more than they trust research*” (p. 2). It is due to the failure of managers to trust the empirical results of research that organizations have begun to pursue decisions through a process known as evidence-based management.

Evidence-based management is one of many evidence-based practices evolving from the medical industry’s successful evidence-based medicine practice. Other forms of evidence-based practices include evidence-based librarianship or evidence-based information practices (Partridge & Hallam, 2006), and evidence-based education (Rousseau & McCarthy, 2007). Evidence-based practice “*is the process of using formal research skills and methods to assist in decision-making and establishing best practice*” (Partridge & Hallam, 2006, p. 400).

Evidence-based management is applying an evidence-based practice to the field of management, using the results of research to inform decision-making and the establishment of organizational best practices.

Issues

If businesses desire to pursue organizational best practices, than adoption of evidence-based management seems obvious, yet many proponents of evidence-based management highlight that this is not the case. Denise Rousseau (2006) outlines the value of evidence-based management, while at the same time highlighting the failure of organizations to implement what they know will work. Specifically Rousseau (2006) concludes that there is no such thing as evidence-based management, because of the “*research-practice gap*” (p. 258). This gap is also reported by others including Edward Lawler III (2007) who note the gap between research and practice, Rousseau and McCarthy (2007) who comment that “*the gap between behavioral science evidence and what even professionally trained managers do is enormous*” (p.85), and Pfeffer and Sutton (2006) who highlight that although managers may believe organizations will perform better, when making decisions based on research, that it “*is another thing to put that belief into practice.*” (p. 7).

In addition to noting the research-practice gap, researchers have also identified a number of reasons for the gap. Gary Latham (2007) explains the gap based on the difference between academia and practice. Latham justified his position by referencing Hulin’s (2001) position that good research does not have to be read or applied by practitioners. That train of thought leads to researchers that do not engage practitioners to establish research projects that may be immediately applicable in practice, which in turn diminishes the likelihood that practitioners will search out the results of researchers. Lawler III (2007) also acknowledges that practitioners, more concerned with current issues and trends, have little interest in reading current research, because the research is generally not focused on the same issues and trends.

In addition to the problems connecting researchers and practitioners, evidence-based management has also been found to conflict with the traditional management education, which tends to take a generalist approach in theory coverage (Rousseau & McCarthy, 2007; Lawler, 2007), often educating students about specific tools to apply to current business issues, rather than explaining the underlying theory that led to the development of the tools (Rousseau, 2006).

Pfeffer and Sutton (2006) summarize evidence-based management as “*a way of seeing the world and thinking about the craft of management...using better, deeper logic and employing facts...to do their jobs more effectively*” (p. 11). Seeing the world differently suggests the need for a change in the way managers think, as organizations pursue an evidence-based management practice. It is understandable that evidence-based management is described as a new way of thinking; given the assessment that many business school graduates have not been educated to think scientifically, or to critically evaluate evidence. Changing the way managers and employees think requires managers and employees learn about new ways of thinking, so the learning preferences of employees will be an important aspect of any organizational initiative to implement evidence-based management.

Evidence Based Millennials

The new workforce of Millennials is set to replace the aging Baby Boom generation, so organizations and managers need to consider changing the way they implement policies, procedures, and training within the organization. With a new workforce comes a new set of attitudes and expectations, and a new way of learning and working. Evidence-based management is established on the premise of making decisions based on the best available research, so it is based on generational research that managers need to consider the implications of implementing evidence-based management practices in organizations, as the workforce transitions from an older boomer to a younger millennial generation of employees.

Evidence-based management has been defined as a seemingly linear process; collect and review evidence, make decision, and implement. This linear approach fits well with a generation that lived most of their lives in an linear analog world, but managers must also consider how Millennials will respond to such a structured approach to working, when they come from a digital world built upon a nonlinear path of least resistance (Bennis & Thomas, 2002).

Frand (2000) notes that Millennials “*feel compelled to answer questions and provide information, often without taking adequate time to think through the consequences*” (p. 22). This need for speed may conflict with the methodical approach put forward by proponents of evidence-based management. The problems with Millennials’ compulsion for forward progress down the digital path of least resistance may be compounded by the notion that Millennials consider peers more credible than teachers, thus conceivably they consider peers more credible than managers or industry experts (Manuel, 2002). If Millennials are more accepting of information (evidence) by virtue of proximity to the source, then there are risks that they will not evaluate evidence as required for successful evidence-based management.

It seems, based on the information presented thus far, that there is a significant disconnect between the skills and actions necessary to be successful in adopting evidence-based management and the natural tendencies of the millennial generation. This would suggest that, in light of the demographic shift in the workforce, perhaps evidence-based management has missed its opportunity to become established as a business best practice. Fortunately all is not lost as there may be opportunity to leverage Millennial characteristics that complement the adoption of evidence-based management practices.

Pfeffer and Sutton (2006) allow for the use of evidence collected as part of a prototyping process, in evidence-based practice. Johnson & Romanello (2005) identified the process of trial-and-error learning as a key-learning characteristic demonstrated by the Millennial Generation. Thus, organizations wishing to leverage evidence-based management practices in the New Workforce may choose to develop a culture, which “*treat[s] the organization as an unfinished prototype*” (Pfeffer & R. I. Sutton, 2006, p. 9). This would complement the Millennials’ trial-and-error learning style and may be well received by employees of this generational cohort. Much like the scenario painted by Mangold (2007) where video games are played and from each failure the player considers information collected from the failed attempt and adjusts their strategy for the next attempt, with each round of prototyping that takes place in the organization data (evidence) is collected to help inform the next course of action, as per the evidence-based management process highlighted by Pfeffer and Sutton (2006).

Potential for successful evidence-based management implementation, within the New Workforce, also exists in the recognition that Millennial employees find peers more credible than teachers (Manuel, 2002). When an organization attempts to implement evidence-based management in the organization there is an opportunity to educate key peers on the merits of the practice, in advance of a company wide rollout. If influential peers are informed and accepting of the value of the practice then the remainder of the millennial employees may be more apt to accept and adopt the practice.

To further improve the possibility of successful implementation of evidence-based management practices organizations should consider the implementation of active learning techniques as part of the training process. Active learning techniques were identified as one of the key learning styles of the millennial generation. To maximize the effectiveness of the training of employees in evidence-based practices alterations to traditional business training programs may be required to ensure they also adopt active-learning techniques, which will improve the success of the evidence-based management-training program with employees of the millennial generation.

Conclusion

Evidence-based management represents an important shift in how effective decisions are made in organizations, yet like any new initiative it will only be as successful as it is properly implemented and accepted by employees. A major challenge facing the global workforce over the next decade is the exodus of knowledge and experience, as Baby Boomers retire. This challenge also represents an opportunity for firms wishing to implement evidence-based management practices, because training can be incorporated into the orientation programs necessary to bring the New Workforce, of Millennials, up to speed on the practices within the organization.

For organizations wishing to implement evidence-based management practices, with the growing employee base of Millennials, it may be useful to recognize how the Millennial preferences and learning styles may enhance or limit the successful implementation and acceptance of this practice, by the millennial cohort. While many characteristics of evidence-based management conflict with accepted characteristics of the millennial generation (preference and privilege afforded to peers as source of knowledge and lack of significance placed on the creator/source of information) their trial-and-error iterative learning style, developed from video game play, can be incorporated into some forms of evidence-based management. To make evidence-based management most appealing to Millennials organizations should adopt a prototyping methodology of collecting evidence from within the organization. Prototyping supports evidence-based management's need to collect current and relevant data while conforming to the Millennials' natural tendency to approach learning through a video game mentality of trial-and-error.

Thus, while the exodus of knowledge and experience represents a significant challenge to the global workforce over the next decade, the New Workforce and evidence-based management represent opportunities for the global workforce to become more efficient and effective at decision-making.

In drawing these conclusions it is worth noting that the study has not relied on primary empirical sources of data, and much of the limited empirical data on the millennial generation is collected in academic settings. It is thus noted that future studies may consider collecting empirical data from the early millennial cohort, which has already started to enter the workforce, to determine if these characteristics are still representative of Millennials who are active in the workforce. Such studies could also investigate Millennials' attitudes towards evidence-based practices to verify the relationships proposed in this paper.

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ASB, 2010
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**EXPLORING THE IMPACT OF LITERACY ON BUSINESS EDUCATION AND
JOB-READINESS: AN EXAMINATION OF THE READING COMPREHENSION
SKILLS OF FIRST YEAR UNIVERSITY STUDENTS**

Despite a growing literature on the challenge for business schools to recruit students, the impact of accreditation and ranking on enrolment in business schools, and the connection between post-secondary education and participation and productivity in the labor market, little research has been conducted to examine the relationship between the drive for student numbers, student requisite skill levels, and job-readiness. This paper examines the reading comprehension skills of first year students using data collected at an Atlantic Canadian liberal arts university. When comparing data by programs, the results suggest that business students possess slightly lower reading comprehension levels compared to students in other faculties. The implications of the findings relate to student success, faculty teaching, institutional integrity, and job-readiness.

Introduction

Over the past 20 years, universities have turned their attention to attracting students both domestically and internationally to tackle declining enrolment (Brown, 2002; Gioia & Corley, 2002; Sanford, Guthrie, Gagné, & Brown, 2004). Canadian universities have been faced with increasing social and economic pressure to increase the student base and have thus begun to market their educational product through branding and advertising their distinct competitive advantages (Brown, 2002). As part of this marketing campaign, University leaders have

embarked on the “race to place” in rankings which highlight top institutions (McGraw-Hill, 2004; Sanford, et al., 2004) and provides a viable competitive advantage over other business schools at home and abroad (Helms-Mills, Weatherbee, & Colwell, 2004). University admissions offices have also broadened the net from which they select applicants, admitting students with marginal grades in an effort to place “bums in seats”. This, coupled with grade inflation, has resulted in diminishing the academic quality of some applicants. Increasingly, faculty members within universities and business schools have questioned the gap between academic rigor and students’ readiness in terms of possessing the requisite skills for success in both their academic program and the job market.

Within a selective post-secondary system, a logical assumption regarding the admission of students into academic university or college level programs is that students with higher core skills, such as reading skills, would meet the admissions criteria while students with lower, and thus insufficient, core skills would be left out. That is, natural selection of students into the post-secondary system would separate those with strong reading skills from those without. After all, the basis of admissions in most Canadian universities is, at least in part, grades from high school, which should, in theory, reflect an objective assessment of a student’s abilities relative to core academic competencies. Yet Graham (2009) found that the reading skills of first year students did not differ from the reported reading skills of the Canadian population as a whole and thus concluded that selection into a post-secondary program was not necessarily contingent upon possessing a requisite level of skills related to reading.

The implications of such findings are significant to students, faculty, the educational institutions, and the labor market. For students, their ability to fully access post-secondary education opportunities and thus participate fully in the global labor market is at stake (Harklau, 2001). For faculty, many of whom assume students arrive at classes able to comprehend the array of reading material presented during the course of a semester, the implications relate to teaching practices, student assessment, and academic integrity. The academic integrity of educational institutions is at stake as the debate between broader access and academic rigor rages on. In an increasingly tight and knowledge-dependent labor market, will graduates have the skills necessary to find productive work?

The purpose of this paper is to examine the reading comprehension skills of first year university students in general, and business administration students in particular. Using data collected at an Atlantic Canadian liberal arts university of students enrolled in an introductory English composition course, results of various types of literacy, including literal, inferential, and critical reading comprehension skills, are examined by different program types (e.g., arts, business, and science). Most significantly, the implications for students, faculty, educational institutions, and broader society will be considered within the context of job-readiness and labor market participation.

Literature

Preparing students for the labor force is by no means solely a university responsibility. However, universities certainly do play a significant role in the development of students who will be heavily relied on in Canada to fill the emerging demand for knowledge workers (See for example Florida, 2008). The premium towards education in an emerging knowledge

economy has been witnessed over the past 20 years by the decrease in jobs without post-secondary education and the increase of jobs with post-secondary education. For example, in Atlantic Canada between 1990 and 2008 over 81,000 jobs without post-secondary credentials were eliminated from the economy while over 240,000 jobs with post-secondary credentials were added (Beale, 2009). This shift towards a knowledge economy emphasizes the importance of the readiness of youth for the labor force, especially at a university education level (OECD, 2003). It stands to reason that with grade inflation and lower literacy levels reported nationally for youth groups that some students being admitted into university programs may not have the requisite skills required to succeed in post-secondary education. This trend presents a challenge for university administrators and educators who must balance the need to maintain or increase enrolment while upholding an academic rigor that will meet the needs of a knowledge economy job market.

Canadian University Challenges

Over the past 20 years Canadian universities have faced numerous challenges in attracting and retaining students, including increasing tuition fees and a shrinking domestic youth demographic from which to draw applicants. As a result, universities have intensified efforts to attract new students both domestically and internationally to deal with declining enrolment and the social/economic pressures to grow. For example, in New Brunswick and Nova Scotia total enrolments declined on average 6.5% from 1998-1999 to 2003-2004, but have since rebounded in 2007-2008 (MPHEC, 2010). Prince Edward Island has continued to post positive student enrolments during all three comparison periods. However, enrolment remains a top priority for many Canadian universities, including those in Atlantic Canada, as the demographic trends continue to show a general decline in the typical age-cohort for post-secondary education.

Despite studies that indicate that there is weak evidence to support the impact of university rankings (Kong & Veall, 2005), the MacLean's University Rankings in Canada is a central measure for administrators to gauge directions for student recruitment and for students to make decisions about institutions. In particular, business schools have been accused of focusing too excessively on imagery (driven by the ranking systems) and not enough on the quality of education and pedagogy (Gioia & Corley, 2002; Grey, 2004). When rankings fall, business schools have been found to move more towards initiatives such as internships and co-op programs, vocational-like skill training, curriculum changes to "hot topics" and intensified public relations campaigns. In short, business schools have migrated to new measures and standards that drive adoption of solutions that may not encapsulate the academic rigor and integrity required in a university education and to prepare students for a knowledge economy workplace and job. Various scales that indicate literacy skill levels exist. For example, the Programme for International Student Assessment (PISA) measures literacy proficiency based on six levels. Work in a knowledge economy requires individuals having level three to six as a foundation for job-readiness. Therefore, enrolling students with less than the requisite skills has creates challenges for institutions, students, faculty and employers.

Canadian Literacy Challenges

Canadian's enjoy among the highest standards of living in the world, in part as a result of high levels of literacy among the population vis-à-vis the citizens of other countries. Yet despite Canadians' strong performance internationally, 41.9% of Canadian adults performed below

acceptable levels in prose literacy while 49.8% performed below acceptable levels in numeracy (Brink, 2006), suggesting a broad-based literacy problem with current and future implications. Data from the OECD study, International Adult Literacy Survey (IALS), demonstrated that results differed by province. Prince Edward Island, and indeed participants from the Atlantic Region, performed significantly poorer than participants from other Canadian provinces (Brink, 2006). Along with IALS, Canadian public school students participated in the Programme for International Student Assessment (PISA), which examined the educational outcomes of students from 22 participating countries. Once again, while Canadian students performed well internationally, the strong performance was not consistent across Canadian jurisdictions with students from the Atlantic Region falling behind their Canadian peers (Bussiere, Cartwright, & Knighton, 2004; Statistics Canada, 2004). All of this is occurring at a time when the economy is shifting away from manual labor and towards a knowledge-based labor market that needs and values a highly literate workforce.

An economy dependent on knowledge workers requires well educated, flexible, and innovative labor market participants (Chiswick, Lee, & Miller, 2003). A core common skill required by the labor market to meet emerging job requirements is literacy skills (Finnie & Meng, 2007; Green & Riddell, 2001). Societal understanding of literacy is evolving. Traditional meanings of literacy included the ability to read and write and were presumed to be dichotomous: that is, one was literate or illiterate. Today's understanding of literacy includes gradations along a spectrum, ranging from no literacy skills to fully literate.

Literacy scholars and advocates have introduced new, and sometimes innovative, meanings to literacy intended to reflect changes in society resulting from globalization, technology, and cultural sensitivities (Collins, 1995; Harste, 2003; Knobel & Lankshear, 2006). These new understandings of literacy extend beyond the traditional view to include niche areas of concern (Bloome & Enciso, 2006). Multiple literacies include competencies ranging from financial literacy, health literacy, cultural literacy, political literacy, and numeracy (Botelho, 2007; Callins, 2006; Paul, 2006; Sheridan-Thomas, 2007). The resulting proliferation of meanings has both supporters and critics. Proponents of a broader understanding of literacy argue that multiple literacies are more reflective of today's world and more inclusive. Critics contend that multiple literacies provide an excuse for the failure of the education system and society to ensure universal access to literacy.

Three specific literacies are germane to this paper. First, adolescent literacy refers to the literacy skills commonly associated with youth and include social, technological, and communication constructs that are unique to this population (Elkins & Luke, 1999; Franzak, 2006). Adolescence is increasingly a period during which individuals challenge traditional understandings of literacy in favor of more self-exploration and expressive communication patterns (Behrman, 2003). However, this is also the period during which individuals are transitioning from the public school system into the post-secondary education system, the latter of which places a great deal of emphasis on traditional forms of literacy.

The second type of literacy is academic literacy, which refers to the literacy skills required in academic environments to ensure academic success (Maloney, 2003). These specific skills relate to the demands and expectations of academic work as it differs from other (non-academic) endeavors. Academic literacy includes those literacy skills needed to access discipline specific material, prepare and present academic arguments, and otherwise meet the demands of academic programs.

Finally, work literacy (or workplace literacy or employment literacy) refers to the skills and abilities related to literacy within the construct of work and might include job finding skills, interview skills, social skills related to the workplace, and occupation-specific skills. However, at the root of each type of literacy are the core skills of reading and writing, despite the contextual nuances.

A growing literature exists that debates the responsibility for teaching traditional literacy skills. Based on the presumption that students possess the requisite literacy skills, subject area teachers or faculty argue their role is to teach content and higher order critical thinking skills. The argument is that literacy skills are tools through which to learn other “content area” material, rather than the learning objective. Yet ample evidence exists that students are not equally or adequately prepared, from a literacy perspective, to access and succeed in post-secondary education programs.

University Enrolment and Literacy Levels Converging

In this paper, the reading comprehension skills of students who have already accessed post-secondary education are considered in the context of what the findings might mean for students while they are accessing post-secondary education programs and afterwards when they participate in the labor market. Implications also exist for faculty members, educational institutions, and the labor market in general.

There are three possible outcomes that exist for students who enter post-secondary education without the requisite literacy skills. First, (and most likely) these students will not make it through to completion the post-secondary education program, dropping out as a result of poor performance or feelings of inadequacy. Although there is little direct evidence supporting this assumption, one of the catalysts of high attrition rates and poor retention might be connected to student preparedness. The second option is that through the post-secondary education experience students develop the literacy skills they need to success in their program of study and emerge at the culmination of the program with adequate literacy skills for the job-market. The third, and most troubling, option is that students slip through the system, finding ingenious and/or questionable ways to circumvent their course work and compensate for their lack of literacy skills. These students emerge at the end of their post-secondary program of study with a credential but lacking the literacy skills needed to be a fully productive labor market participant. This last option is particularly troubling to educational institutions whose reputation and integrity may be at stake as their “graduates” make their way through the work force.

Method and Analyses

The purpose of this paper is to describe the reading comprehension skills of first year university students at a liberal arts university in Atlantic Canada, with particular attention to the results from students in the business administration program and to examine the implications. Data was collected using a pen-and-paper survey that was administered in the classroom during class time. The data from this survey was initially analyzed in a doctoral dissertation titled, *A Correlational Analysis of Reading Comprehension Skills and Access to Post-Secondary Education* by Graham (2009) to assess access to post-secondary education. The data for the

purpose of this paper is being re-analyzed to examine literacy levels within university programs to consider the implications these findings may have on future job-readiness.

Using the reading comprehension component of the Canadian Adult Achievement Test (CAAT), first year students enrolled in English 101 in the fall of 2007 at a Canadian liberal arts university were invited to participate in the study. The reading comprehension assessment instrument (CAAT) has 55 multiple choice questions broken down to focus on literal, inferential, or critical reading comprehension skills. The short survey that accompanied the reading comprehension assessment instrument included questions regarding the study participant's gender, age, high school attended, and program of study. The short survey also included a question asking students to self assess their reading skills.

The data elements provided for analysis for this paper included program of study, gender, age, high school attended, overall reading comprehension score, literal comprehension score, inferential comprehension score, and critical comprehension score. Analysis of the data using SPSS included general descriptive statistics, including mean and standard deviations. The second phase of the paper will consider the potential implications for students, faculty members, educational institutions, and the labor market in relation to the study findings.

Results

Descriptive Statistics

Reading comprehension assessment results and survey information was available for 221 first year students enrolled in English 101 at an Atlantic Canada liberal arts university in the fall of 2007, a response rate of approximately 40 percent of the target sample. Of the 221 participants, 137 (62%) were female and 84 (38%) were male (See Table 1). At the program of study level, a notable observation is the skewing of genders within the respondents from the arts faculty. A second notable observation is that male participants outperformed female participants on all four measure of reading comprehension (See Table 2).

Table 1: Gender and Program of Study

Program of Study	Female		Male	
	#	%	#	%
Arts	65	77	19	23
Science	33	52	31	48
Business Administration	38	53	34	47
Other	1	100	0	0

Table 2: Gender and Reading Comprehension Skills

	Female (M)	Male (M)
LC (15)	9.80	10.32
IC (27)	18.39	19.27
CC (12)	6.64	7.01
ORC (54)	34.84	36.61

The average age of respondents was 18.7 years. The majority of participants, 161 (78.2%) were under 20 years of age, which is not surprising given that the target sample was first year university students. Another 34 (16.5%) were between 21 and 25 years of age, while 11 (5.2%) were 26 years old or older. Fifteen participants did not indicate their age on the survey. Graham (2009) reported that older students tended to perform slightly better than younger students in the study.

Participants were asked if they graduated from a high school located in the region of the university. Of the 221 participating students, 184 indicated they graduated from a high school located in the region. Participants were also invited to indicate which high school they graduated from. High schools were categorized as serving primarily an urban or rural population. Three high schools served communities with a population greater than 5000 and were thus labeled *urban* high schools. The remaining nine public high schools were labeled *rural*. Of the 184 respondents that graduated from a high school in the region, 96 (52.2%) graduated from an urban high school, while 88 (47.8) graduated from a rural high school. There were no significant difference in reading comprehension scores by high school attended (Graham, 2009).

Using data from the all respondents, the mean overall reading comprehension score was 35.51 out of a possible 54. The mean overall reading comprehension scores of regional high school participants by program of study were Arts = 35.25, Science = 36.65, and Business Administration = 34.75, all out of a possible 54. Table 3 includes a more complete breakdown of reading comprehension results by program of study.

Table 3: Reading Comprehension and Program of Study

	LC (15)		IC (27)		CC (12)		ORC (54)	
	M	SD	M	SD	M	SD	M	SD
Total (n=221)	10.00	2.64	18.73	4.41	6.78	1.82	35.51	7.65
Arts (n=84)	9.69	2.70	18.69	64.73	6.87	1.82	35.25	8.08
Science (n=72)	10.00	2.52	19.33	3.85	6.92	1.88	36.65	7.07
Business Administration (n=64)	10.03	2.62	18.17	4.54	6.55	1.75	34.75	7.62
Other (n=1)	5.00	-	14.00	-	5.00	-	24.00	-

The CAAT provides grade-level equivalents for corresponding assessment scores. Although a rudimentary, and perhaps antiquated, proxy the results give an immediate reference point for educators familiar with the public school system. Table 4 includes information about the reading comprehension grade level for participants in the study.

Table 4: Grade Level Equivalent

	Number of Students (%) at this Grade Level of Reading Comprehension Proficiency
More than Grade 12	127 (57%)
Grade 12	14 (6.3%)
Grade 11	10 (4.5%)
Grade 10	4 (1.8%)
Grade 9	16 (7.2%)

Grade 8	18 (8.1%)
Grade 7	20 (9%)
Grade 6	3 (1.3%)
Grade 5	6 (2.6%)
Grade 4	3 (1.3%)

While Graham (2009) identified a smattering of relationships among reading comprehension skill and students selection of post-secondary education and program of study, perhaps the most note-worthy findings from the data are the reading comprehension scores. No differences existed in the scores of first year university students and the scores of the broader Canadian population. Put another way, reading comprehension skills (or lack thereof) did not seem to influence whether an individual enrolled in a first year university program. Fully 36.7% of respondents had reading comprehension skills below the grade 12 level and 29.5% had reading comprehension skills at the junior high school level (Grade 9) or lower. Yet each student purportedly met the academic requirements for admission into the university.

No statistically significant differences existed in the reading comprehension scores of the cohort of respondents and students from the business administration faculty. Yet it is worthy to note that students from the business faculty scored, on average, below other students on three of the four measures of reading comprehension (including inferential, critical, and overall reading comprehension but excluding literal comprehension).

Perhaps the most significant anomaly in the data was the performance of respondents by gender. Contrary to most of the literature on gender and literacy, male students at this university significantly outperformed female students. Graham (2010) offers several possible explanations for this finding, including the voluntary nature of participation in the original study and the growing tendency favoring females in post-secondary education resulting in high quality (but fewer) male students.

Discussion and Conclusion

The study findings have implications for students, faculty members, educational institutions, and the labor market. A societal expectation exists that reaching certain educational milestones has a specific meaning. Earning a high school diploma is supposed to mean that the student has a requisite skill level in certain areas, literacy being one. Admission into a post-secondary education program is supposed to mean that the gatekeepers of that institution have determined, using some objective measures, that the student possesses the skills sets necessary to succeed in post-secondary education. The disconnections between expectations and reality may have profound personal and societal repercussions.

For students, the implications of insufficient reading comprehension skills follow one of two tracks. Firstly, for students who have poor reading comprehension skills it may mean that they are unable to successfully complete their post-secondary education program, thus impacting their choices of careers. Students with poor reading comprehension skills may also be, for the first time, confronted with feedback that they are not performing as needed academically and this may impact their self-confidence or self-image. The result may be that students with poor reading comprehension skills bounce around or disengage from the post-secondary education system, thus limiting their choices within the labor market and impacting their potential future

earnings. The second track includes implications for students with higher reading comprehension skills who share classroom experiences with students with lower reading comprehension skills. Students with higher reading comprehension skills may experience an erosion of learning expectations to accommodate the poorer performing students. Peer-to-peer learning, via classroom discussions that are based on readings may also be less fruitful when some students in the class lack the necessary reading comprehension skills. In a group learning situation, students with higher reading comprehension skills may feel it necessary to carry more of the burden of group work.

Faculty members have an expectation that students arrive to class equipped to learn the content specific material covered in the course. The realization that many students arrive at university without the requisite skills to fully engage in the learning process may result in faculty members' altering the expectations of students to reflect the abilities and skills of the general student population. The study findings may also impact the workload of faculty members who, in addition to assessing students' assignments based on course content, may also have to provide students with feedback relative to literacy skills. Faculty members may also have to devote classroom time to covering material that should be accessible to students via their text book or other printed course material. Finally, faculty members may be pressured to lower their grading standards to enable more students to succeed.

For educational institutions, the implications of accepting a significant proportion of students who do not have sufficient reading comprehension skills include retention and attrition, academic reputation and integrity, and financial obligations. Many universities are facing challenges related to retention and attrition of students, particularly during and after the first year of study. One possible reason for high attrition might be that some students are discovering they lack the skills necessary to be successful in a post-secondary program and are either voluntarily or being forced to exit the system. Post-secondary education institutions have long established reputations as beacons of higher learning and excellence and have a history of attracting the best and brightest minds. But as post-secondary institutions become more competitive and the societal demand to be more inclusive increases, institutions are accepting more individuals who lack the foundational skills necessary for success in an academic environment. Financial investments in supports for students with deficient reading skills levels can be a drain on an already over-taxed education system. Finally, the educational institution's reputation may erode if they continue to accept, retain, and graduate students with questionable skills.

The implications for an increasingly knowledge-based labor market vary. Without the necessary reading skills, many people may not persist and complete their post-secondary education, thus limiting their productivity and flexibility in the labor market. Perhaps more profoundly, the implications of lower literacy levels and fewer graduates with the necessary skills may be found in a lagging supply of job-ready labor for the emerging knowledge economy.

This study provides interesting insights about the varied degree of readiness of students entering the university education system. The findings present some considerations that should be taken into account when interpreting the results. Namely, it should be noted that the study was conducted in a region in Canada with the lowest national literacy level results. However, the findings highlight issues and challenges that require further investigation. For example, a longitudinal study of regional first year cohort's progress through university will assist with developing an understanding of the relationship among student literacy, program of study and

success. The results from the study overall emphasize the need for a deeper examination of various factors relating to student entry and readiness for university and the quality of graduates to move successfully into knowledge economy work.

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ASB 2010
Halifax, Nova Scotia

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REFLECTIVE LEARNING: EDUCATING MANAGERS FOR A SUSTAINABLE WORLD

The importance of reflective classroom practices in addressing complex business problems has been noted by Mintzberg, Senge and others concerned with building a sustainable world beyond the assumptions of the Industrial Age. This paper presents an overview of alternatives and one set of practices in depth developed by the author.

Overview

Markets tend toward efficiency. People respond in pretty straightforward ways to incentives. The invisible hand forms a spontaneous, dynamic order. Economic behavior can be accurately predicted through elegant models.

This view explains a lot, but not the current financial crisis — how so many people could be so stupid, incompetent and self-destructive all at once. The crisis has delivered a blow to classical economics and taken a body of psychological work that was at the edge of public policy thought and brought it front and center.

-- David Brooks, the New York Times Op-Ed page, January 16, 2009

What kind of educational preparation might have made things different for all those business school graduates in the financial sector? This article highlights the efforts of some educators to include more reflective practices in preparing students for the complex challenges they will face.

The financial sector is not our only concern. Complex problems such as those that pit crucial environmental issues against voter sensitive economic concerns, or create unprecedented bioethical questions, or compromise individual rights in the name of public safety, require consideration and dialogue that allows examination of underlying values, purpose, and assumptions. Enabling current and future managers to address these complex problems through reflection, creativity and collaboration should be our goal as university educators.

In a Harvard study of MBA students titled "*Can Ethics Be Taught?*" the authors concluded that

“[students] are hindered by a lack of experience in making value-based decisions, a lack of comprehension regarding the consequences of their actions on society... and an inability to articulate their own values in a leadership role” (Piper, 1993, pg. 72). As managers, investors, and business owners will many of our graduates remain so focused on short-term profitability that that they will ignore long-term sustainability? What can we do to enable the next generation of decision makers to see the trends and patterns underlying events, find their own voices, and respect a diversity of views as they make decisions that affect society?

In her book, *Becoming a Manager*, Linda Hill (1992) concludes from her own research that "the education many business schools provide does little to prepare managers for their day to day realities" including values-oriented decision-making. Once we take analysis behind the numbers and graphs we are in a realm of “soft skills.” We are talking about value laden choices, multiple perspectives, reflective thinking and the ability to communicate. Further, even when these “soft skills” are introduced they may get lost amid all the hard analysis and technique. Yet, asked to suggest one improvement to the MBA program, the graduates of Hill’s courses called for more teaching of the soft skills.

According to a survey of MBA programs by Mintzberg (2004), the soft skills simply do not fit in. Some professors do not care about them or cannot teach them, while most of the younger students are not ready to learn most of them. This article delineates several approaches that show promise, including Mintzberg’s emphasis on student engagement.

The burden does not just fall on business schools. Learning is regarded by almost half of university students as acquiring and being able to reiterate information presented by a teacher or a text (Baxter Magolda, 2004). For most students entering university, the greatest shock is discovering that learning is more than collecting information and reiterating it. In other words, these students know what they know on the basis of accepting authority. Rote learning, memorizing new information without relating it to prior knowledge or exploring its meaning, still dominates much university thinking and writing, almost regardless of students chosen fields of study (Novak, 1998). Many students do not recognize the degree to which information has been selectively chosen and interpreted, nor do they demonstrate much inclination toward reflection and independent critical thinking.

It is clear that students must have opportunities to develop greater sensitivity to the consequences of their decisions and actions; to develop skills needed to analyze complex situations which involve incomplete information, conflicting responsibilities, and multiple viewpoints; to examine their own assumptions and values in light of new situations; to “try on” different ethical decision-making rubrics; and to fully explore others’ values. There have been many approaches with mixed success, but the most successful have some characteristics in common. They all use reflective practices that engage participants in examining their own assumptions.

Reflection

Reflection begins with the conscious monitoring of one’s thoughts, often in a comparative and iterative process, that leads to some kind of evaluation or judgment (Beauchamp, 2006). With respect to investigating background logic and underlying assumptions, Stephen Brookfield (1995) holds that “the most distinctive feature of the reflective process is its focus on hunting assumptions.” Brookfield describes the deepest layer of assumptions as “paradigmatic”

axioms we use to order the world into categories, yet we may not be aware of them unless we are encouraged to articulate them.

Peter Senge (2008) also focuses on reflection and assumptions, but at first from a different perspective than Brookfield.

"[In] a world of growing interdependence, it's more important than ever to learn how to expand boundaries of normal management attention and concern in order to see the larger systems in which businesses operate. Failing to do so leads to policies and strategies whose side effects eventually sabotage the intended effects... " (45)

Senge describes “the systems thinking iceberg.” What we usually see above the surface of our attention are events. The first layer of reflection addresses the question, “What just happened?” If we look below the surface we may see patterns and trends. This layer of reflection addresses the question, “What’s been happening? Have we been here or someplace similar before?” Looking further, we may distinguish systemic structures or forces, and address the question, “what are the forces at play contributing to these patterns?” Many analytic processes take us this far. But Senge goes further and matches Brookfield’s deeper concern by seeking to identify *the mental models* that address the question, “What about our thinking allows this situation to persist?” Here the attention turns inward to a more subtle kind of reflection, *a reflexive disposition*.

A reflexive disposition involves stepping back or ‘decentering’ from personal requirements, disciplinary or social norms, and personal and disciplinary assumptions (Endres, 1996; Habermas, 1990; Van Gyn & Ford, 2006; Van Gyn & Ford, 2006). A reflexive disposition enables the reflective thinker to see things as they are, beyond egocentric and ethnocentric thinking, and beyond mere habitual thinking (Paul, 1990). This does not imply that things are “one way;” a single objective truth. On the contrary, seeing things as they are may reveal interdependent layers to reality and changing conditions, more like a poem than a mechanical schematic.

The mental models that filter perceptions and guide decisions do not necessarily dissolve with development of a reflexive disposition, but they do become clear. We are able then to distinguish them as a choice we are making. Mental models can often be expressed simply; they do not necessarily express themselves as complex systems diagrams, as educator Jaime Cloud has discovered. She asked hundreds of students who played a game called Fish Banks about their thinking. Fish Banks is a computer-supported simulation game: a simplified world of commercial fishing where the players control the fishing companies. Invariably, students as well as experience managers who play this game fall into the “tragedy of the commons;” they overfish and there is an eventual collapse of the industry, much to their dismay. This game is an excellent vehicle for students to uncover their mental models and underlying assumptions.

Peter Senge popularized the concept of the “tragedy of the commons” in *The Fifth Discipline* (1990) (Senge, 1990), but it is a pattern that was noted by ecologists long before. No community shared resource – fish, land, water, oil – is immune to this tragedy. Historically, many natural resource-based businesses start out wisely and sustainably and then yield to competitive urges, as they assume they must increase their efforts to keep up with the other companies that are growing. The results are unsustainable businesses and depleted resources.

Here are some of the responses of students who played Fish Banks and were questioned about their initial assumptions after the game resulted in the fisheries collapsing (Senge, 2008): "our actions won't affect the future; there will always be fish." "You've got to win; it's that simple." "There isn't enough to go around so if we're going down, we might as well go first class." "Things are the way they are and there's nothing we can do about it." "If others do it, I'd be stupid not to do it also." "My responsibility is to myself and my family." "The market or technology or someone/something will take care of it." "I want a lot, and I don't care about the consequences." "It's just a game."

These are mental models, core beliefs that people, adult professionals as well as students, may or may not admit or be aware of. With the development of a reflexive disposition, people do become aware of their mental models and allow them to be challenged in the interest of a sustainable future, a world where maximizing individual short-term gains is not the ultimate priority. The collapse of the commons is not inevitable.

Senge (2008) also describes a Fish Banks workshop hosted by Harley-Davidson, the famous motorcycle company he describes as having a unique organizational culture. The Harley team refused to continue the game until every team agreed to share information on fish catches -- they wanted to make a point because they had seen the pattern of previous games. They knew this information was necessary so that everyone monitor the overall supply and determine if the total fish catch was declining. They also set an example of announcing when they would expand their fishing fleet and eventually everyone followed it. The fishery never collapsed, the companies all remained profitable, and the players learned an important lesson about recognizing their mental models and allowing them to be challenged.

In his response to a conference organizer's question, "Is the modern corporation fit for the 21st century?" Henry Mintzberg answered an unequivocal "yes." "The only problem," he added, "is that the 21st century is not fit for life on Earth." Mintzberg added that the US corporate model, with its emphasis on "virtually unbridled" shareholder rights epitomizes the imbalance between the business sector and the social sector; it leads to an unsustainable future (Senge et al., 2008). Mintzberg proposes and carries out an educational design that centers on reflective practices and development of a reflexive disposition.

Mintzberg distinguishes five mindsets than encourage a reflexive disposition: 1) the reflective mindset -- about self; 2) worldly mindset -- about the environment and social context¹; 3) the analytical mindset -- about the organization; 4) a collaborative mindset -- about relationships; and 5) the action mindset -- about change. Discovering these mindsets leads to a deeper appreciation of reality in its many forms (Mintzberg, 2004).

Mintzberg puts considerable weight on engaging students through *experienced reflection*. He overcomes the limitation of students' seemingly limited experience through interactive exercises that create experiences relevant and analogous to "worldly experience" in the classroom. Experienced reflection in the classroom confronts new ideas with established beliefs, individually, in small groups, and across a whole class as he takes students through exercises that demonstrate the five mindsets. Because this is a pedagogical method of sharing

¹ With respect to the worldly mindset, Mintzberg relies on the Oxford dictionary, which defines worldly as "experienced in life, sophisticated, practical."

and adapting, he leaves the learners to be significantly self-organizing and free to follow the natural patterns of discovery. However, experienced reflection makes beneficial use of concepts conveyed through traditional lecturing, the experiences of others through case studies, and new experiences obtained through students' field studies and projects. These other pedagogical methods are sources of inputs for experienced reflection. The real power lies in blending these more traditional ways of teaching with the natural experiences of the student managers.

At the MIT Sloan School of Business Management Peter Senge has been enabling students to develop "learning organizations" with reflective practices for 25 years. This means above all learning to see the deeper patterns that connect many different problems in an organization, questioning the assumptions that allow problems to persist, and collaborating with all stakeholders to make necessary changes. Students are taught not just to track events and "react" with problem-solving solutions, but to reflect more deeply and ask questions that inevitably trace back to the assumptions they make about what they perceive as reality.

To begin with what students were learning was aimed at making companies more innovative and profitable. But something shifted as Senge saw the results coming out of the MIT Sloan School of Management. For the past decade, the focus has shifted to learning that aims at a sustainable, flourishing world for life beyond the Industrial Age, not just short-term profits and problem solving that merely shifts the burden elsewhere. Senge saw that people get so drawn into fragmented views of all the "problems" we face that they often resort to superficial quick fixes. According to Senge (2008, 12), "this represents perhaps the greatest learning challenge humans have ever faced, and it will require extraordinary leadership from institutions of all sorts." In *The Necessary Revolution* (2008) he documents the ways that some organizations and individuals are already working together to enact new ways of managing and leading. They engage in many reflective practices to make creative collaboration and effective action possible.

Hedberg (2009) sees the classroom as a place not only where analyses occur and actions get taken, but where managers can gain the perspective needed to see general patterns, ponder alternative actions, be aware of consequences, learn how others might perceive the situation differently, and challenge their own assumptions about what needs to be done. She builds on the work of Schon (1987) and Seibert and Daudelin (1999) and distinguishes three different types or levels of reflection that enable students to judge the relevancy, appropriateness, and the consequences of their decisions and actions: 1) *Subject reflective learning* focuses on the subject matter or concept itself. It addresses the question, "what am I learning about the subjects studied?" 2) *Personal reflective learning* focuses on the learners perspective or personal insights gained. This type of self-reflective or reflexive learning leads to insights about habits of the mind and helps students see how their habits influence actions. It addresses the question, "what am I learning about myself?" Reflexive inquiry produces a deeper level of engagement because it involves the students' own experience. It is less abstract than subject reflective learning because it can uncover a person's mental models. 3) *Critical reflective learning* challenges the student to question assumptions, beliefs, and commonly accepted wisdom. It focuses on the broader implications of learning and addresses questions such as, "what societal meaning does my learning have? What would be the impacts of decisions in the immediate and long-term future for everyone affected?" Hedberg's work is further supported by (Brookfield (1995) who described critical reflection broadly as thinking that develops a greater social awareness, encourages students to see the social and

political forces that shape behavior, and recognizes the systemic structures and the larger context within which they operate.

These three types of reflective learning are presented as hierarchically arranged. Nor are they independent of each other. But taken together, they allow students to see things differently than they would if they were merely reiterating the words of the text while passively accepting the authority of their teachers.

There are many models of reflective learning and business school educators are encouraged to experiment to see what works best for them. Driscoll, Sable, and van Esch (2005) and Sable (2007) implemented a particular set of reflective practices in university undergraduate courses over four years, explained in detail below. Preliminary research indicated that students showed modest gains in their ability and motivation to explore content-related questions beyond reiterating information presented in lecture notes. There was increasing incidence over a twelve week period of students articulating their own beliefs, values, and theories, acknowledging others' beliefs, values and theories, recognizing their mental models and the constructed nature of meaning (implicitly and sometimes explicitly), and consequently enriching their original understanding.

Reflective Interaction

In this section the set of reflective practices described have been implemented with 40 students once a week in a 45-50 minute sequence in the context of a 2 ½ hour class that runs for 12 weeks. They can be considered most effective as a whole set, but shorter exercises based on any element or combination of elements may also produce the benefits of a reflexive disposition.

Mindfulness Meditation

The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. An education which should improve this faculty would be the education par excellence. But it is easier to define this ideal than to give practical directions for bringing it about. (James, 2007)

Fortunately, practical directions for bringing back “wandering attention” are now available. Over the past several decades, a growing body of research examined the impact of mindfulness meditation and other contemplative practices on a variety of human faculties related to attitudes and decision-making. The work began in the fields of health and stress management (Beddoe & Murphy, 2004; Davidson & Kabat-Zinn, 2003; Kabat-Zinn, 2005; Santorelli, 1999), expanded to psychology and psychotherapy (Germer, Siegel, & Fulton, 2005; Goleman, 2003; Langer, 1989; Langer, 2000) and also focused on education (Buchmann, 1988; Butler, Symons, Marshall, Kaufman, & Spiegel, 2008; Zajonc, 2003; Zajonc, 2008). Networks of educators and researchers now exist for promoting and researching the impact of mindfulness meditation and related practices in higher education (e.g., The Association for Contemplative Mind in Higher Education and the Mindfulness in Education network).

Mindfulness meditation in this context is training one's attention to be focused on the present yet open (Kabat-Zinn, 2005; Langer, 2000). In general, the benefits of mindfulness meditation are becoming well known: stress reduction, calmness, broadened perspective, and insight. An increasingly common approach to reflective practice in higher education begins with some form of mindfulness meditation in class (Zajonc, 2003).

Mindfulness meditation in this context is a complement to discursive analysis, an unbiased investigation of experience – qualities, images, feelings, thoughts – without rejecting, fixating on or creating a storyline. The five senses are not shut out; sense experiences are also regarded in the same way, with suspended judgment. The intention is be curious but with suspended judgment, key ingredients of a reflexive disposition.

Yet, in basic mindfulness meditation there is no specific situation to focus on, only the natural breathing, the sense of body, and whatever arises in the mind without provocation. The effect of the practice is to enable the practitioner to gradually recognize the field from which experience arises, the clear inner space of experience: the mind. Equally important, the practitioner recognizes and becomes familiar with how one's mind functions: with projections, filters, and habitual patterns mediating between direct experience and judgment (Kabat-Zinn, 2005; Mipham, 2003; Wallace, 2007).

In practicing meditation students inevitably experience thoughts, feelings, and sensory perceptions that form the filter of ordinary consciousness. They notice the memories, habitual patterns, assumptions, hopes and fears that color present experience. They may recognize the premature cognitive commitments of “mindless” thinking, when we attach particular meaning to some data purely out of habit, without thinking critically (Haidt, 2006; Langer, 1989; Langer, 2000).

They may notice how meaning attributed to other people's behavior may be their own projection. If one rests the mind openly in the present moment one can also suspend judgment. One can then examine freshly the evidence for making judgments. However, during mindfulness meditation all this is unprovoked – there is no intended form or object other than natural breathing to focus on.

The practice is merely to notice whatever arises in consciousness and return attention to the breath, without judgment. Nonetheless, mindfulness meditation typically leads to new insights about how the mind works. Langer (1989) further describes the results of this practice as: “(1) creation of new categories; (2) openness to new information; and (3) awareness of more than one perspective” (p. 62). These results correspond directly to the characteristics of a reflexive disposition, especially to the ability to “take a fresh look,” and open the door to new insight (Shapiro, Brown, & Astin, 2008). Mindfulness meditation is the foundation for the contemplative practices that follow. Each of the succeeding practices is an extension or an elaboration of this basic practice.

At the same time, as Nosich points out, for some students (and professionals) “suspending judgment... is an awkward, uncomfortable, almost unnatural response. It is far more immediately satisfying to plump down for some answer, however unexamined; it is more gratifying to be unreasonable” (in Paul, 1990, iii). Indeed, not all students benefit from mindfulness practice because they cannot manage the discipline of regular practice. Classroom meditation sessions are limited by necessity to short periods. However, for many

students more structured contemplation exercises with specific content to focus attention may be more engaging and can similar insights to some degree (Crooks, 2008; Jeong, 2003).

Structured Contemplation

While the foundation practice for a reflexive disposition is mindfulness meditation, structured contemplation exercises also train the attention. While mindfulness meditation has no intended object of thought other than the experience of breathing, structured contemplation is distinctly focused on a particular question, statement or image. As described by Buchmann (1988), Chickering, Dalton and Stamm (2006), Seamon and Zajonc (1998) and Zajonc (2008), the objective of structured contemplation is to take the student's awareness past data noticed only from habitual patterns to fresh, direct experience.

There are two phases to structured contemplation practice. First, one trains the attention on the object *without analyzing or manipulating it in any way*, following the practice described by Seamon and Zajonc (1998) and Zajonc (2008). For example, the professor could describe the Fish Banks game and the typical tragedy of the commons result.

The instruction is:

Hold the contemplation. Listen to the story, but don't try to analyze it yet. Stay mindful but remain open. Notice any initial thoughts that may arise in connection with the story and its outcome, but don't fixate on them. This part of the process trains your ability to remain focused on the present situation without attachment to habitual thinking patterns.

The first phase is valuable in that gradually, over repeated practice with different contemplations, the student develops a sense of discipline free from distraction and is no longer limited only to habitual patterns of conceptualization. As habitual intellectual deliberations are noticed, students are instructed not to be committed too quickly, but to remain open and come back to the present situation, in this case to the story of the Fish Banks game.

Following Seamon and Zajonc (1998) and Gendlin (1978), in the second phase one then begins to open the attention toward the object and allow new dimensions to emerge. The instruction is:

Next, open your awareness and pay attention to what is happening in your whole body, not just your mental space. Notice especially any *felt sense* rather than a storyline with words. In this step, stay with that felt sense just as you would otherwise stay with the breath in meditation. Look directly at this felt sense without judgment. Let your attention be open.

Within oneself one may notice an internal *felt sense* or perceive something unnoticed or unformed at first (Gendlin, 1978; Jaison, 2007). This introspective side of contemplation has also been termed *focusing*. "Focusing is spending time sensing something as yet undefined that comes 'in one's body' in connection with some specific problem" (Gendlin 2000, 11).

On a gross level, most people can recognize tightness in the chest or butterflies in the stomach if they occur when thinking about a provocative issue -- although they would rather not focus their attention on it. This second stage of contemplation is more subtle and more deliberate. This redirecting of attention from the stream of thoughts to the body is a kind of gentle curiosity about what one is experiencing underneath the words running in the mind. What may arise from the focusing aspect of contemplation might be, for example, recognition of a slight feeling of irritation, a slight aggressiveness, which, if conceptualized might lead to the thought, "I know better than these other players." The student may then become mindful of what is happening and question such a thought, in effect suspending it for the moment.

Whatever conceptual meaning is derived in the next stage of contemplative practice would take this felt sense into account. For example, the student may write in response to this contemplation that she noticed her own mental models guiding her response to the story and a deeper felt sense that those ideas may not be true.

By slowing down the thinking process, the student discovers space for fresh perspective to emerge. New dimensions of meaning can appear to come from either side: something new about the object of contemplation (the story in case) may emerge or something new inside oneself in response to the object of contemplation may emerge (Gendlin, 2000). In other words, something new may appear to emerge from the perceived or something new may be noticed in the perceiver, or both.

The importance of considering and integrating as many factors as possible about the kind of challenges posed by complex problems (such as the Fish Banks game) is emphasized by diverse researchers and scholars of critical thinking (Baxter Magolda, 2004; Brookfield, 1995; Kurfiss, 1988; Paul, 1995) .

From structured contemplation exercises students find their own voice (Belenky, 1986). They develop fresh language to describe what they experience. Rather than simply re-iterate lecture material, they integrate it with their own experience and assimilate the meaning of the contemplation in the context of the course material. In our example, students explore their response to the Fish Banks game, whether they would have responded differently than most players, how and why.

What students may gain from structured contemplation is encouragement and familiarity with an open-minded disposition, flexibility in considering alternatives and opinions, honesty in facing one's own biases, prejudices, stereotypes, egocentric or sociocentric tendencies, and prudence in suspending, making or altering judgments -- characteristics of a reflexive disposition (Facione, 1990) . In turn, these dispositions support the self-regulatory judgments in interpretation and inference, also core components of a reflexive disposition and independent critical thinking (Endres, 1997) .

Journals²

² Journals are not graded. Grading would reinforce student concerns with getting the "right" answer, when the exercise is really more concerned with articulating authenticity, inquiry, and insight. Samples of journals are often included, without identifying who wrote them, in the lecture notes of the next class to illustrate the richness of different points of view and to review the course content.

After structured contemplation, students are instructed to articulate their understanding in writing. Journal writing helps to build confidence in one's own ability to reason (Lee, 2004). Narrative journals have become a common pedagogical tool in university (Baxter Magolda, 2004; Elbow, 1986; Goldberg, 1986; Mezirow, 1991). In this context students are asked to write about their response to the contemplation process. Evidential, conceptual, methodological, criteriological, and contextual considerations may come into play (Driscoll, Sable & van Esch, 2005; Sable, 2007). The instruction is:

Write down what comes to you from your contemplative experience without a lot of editing on the first pass. Once you start writing, let it be "first thought, best thought." There will be time to edit it later if you wish. Let your response come in fresh words that reflect your full, present experience of the contemplation. Don't rush to write, be patient and wait for words that fit best. See if there is some new meaning there, beyond your initial response when you first heard the story.

Then ask yourself, "Is that all?" Explore the edges of what you are aware of in response to the contemplation. Write no more than a page, less is better.

While the instruction above is very open-ended, more analytic or evaluative questions could be asked as well. Here students are encouraged to explore their own questions, paradoxes, or images – whatever comes from their own experience in relation to the content of the contemplation. The point here is to train the mind further to clarify observations in the present moment, encourage internal inquiry, and allow genuine insights, including new questions and dilemmas, to be articulated in writing.

Interaction: Journal Reading in Pairs

The next stages of the process are interactive and take the students out of a purely introspective realm. From this point forward knowledge is reviewed and constructed as a collaborative process, first between the students in pairs and then with the whole class led by the instructor. The following practices are significantly influenced by the research on the social construction of meaning (Bruffee, 1999; Gergen, 2001, 1999; Haidt, 2006; Kolb, 1984; McNamee, 2006).

Students may notice that meaning derived from shared experience in the present is more than abstract. Such meaning is personally relevant and of value in that it establishes peer relationships of mutual recognition, respect and trust. Shared meaning gives life to the course content. It may give the students a sense of connection to each other and even shift some of their underlying assumptions and paradigms for what higher education is about. There are several intentions to reflection interaction: to establish respect and understanding amongst the students for each other's point of view; to increase the levels of engagement, openness and authenticity of responses; and ultimately to engage them in collaborative thinking about complex issues in an atmosphere of respect and dialogue.

It is important to note that mindfulness is not forgotten in interaction. In fact, the challenge of being mindful begins with listening.

Reading, Listening and Reflecting Back (Paraphrasing)

Moving to interactive contemplation, students read their journals to each other in pairs (or a triad if there is an odd number in the class). The instruction is:

Reading and Listening

Break into pairs. One person volunteers to read out loud his or her response to the contemplation. The other person listens. Listen with self-awareness. This awareness has two aspects: 1) notice the tendency to make judgments, to agree or disagree. The point is not to reject your own judgments, but to recognize the habit and the tendency to commit to them prematurely; 2) listen openly, beyond your judgments and assumptions. (Do not take notes while the first person is reading – let your attention be directly on the reader.) In the next step you will paraphrase what you have just heard. But first, it is instructive to notice how much was retained and how much was imagined.

First, the listener is instructed to listen and absorb what is said, and to notice the tendency to compare what is said by the reader with his or her own journal. Both readers and the listeners often report that it is instructive to discover how much was retained and understood, and how much projection and “filling in” can go on (Gendlin, 1978; Jaison, 2007; Sable, 2007). Over time listeners can train themselves to become more aware of their assumptions and projections as they listen (A. L. Brown & Palincsar, 1985; A. Brown, 1987).

Listening in pairs allows students who are reading to each other to feel less rushed and pressured than speaking to the instructor in a classroom discussion. There is more time. The concept of “wait-time” as an instructional variable was investigated by Rowe (1987). The “wait-time” periods Rowe found -- periods of silence that followed teacher questions and students' completed responses -- rarely lasted more than 1.5 seconds in typical classrooms. She discovered, however, that when these periods of silence lasted at least three seconds, positive things happened to students' and teachers' behaviors and attitudes. Students who previously had not participated did so. Equally important, teachers' opinions about who was likely to be following class discussions and engaging in autonomous reasoning shifted.

Within the reading and listening stage students trade roles so that each has the experience of reading, listening, and then reflecting back, paraphrasing, what they heard. The instruction is:

Reflecting (paraphrasing)

The listener then paraphrases or reflects back what has been said, trying to communicate just what the first person said *without adding to or interpreting their meaning*. The first person confirms, corrects, or fills in if something important to them is missing.

Reflecting back (paraphrasing) what is heard without interpretation is sometimes called active listening, mirroring, or deep listening (Isaacs, 1999). This process originated with psychologist Carl Rogers (1969) and was elaborated by Eugene Gendlin (1978) in his focusing process. In the context of mindfulness and reflective interaction, listening is a continuation of mindfulness, suspending judgment, cultivating openness and training one's attention during interaction. Here students may become aware for the first time how challenging it is to listen without making judgments or thinking ahead about what one should say in response. After presenting many workshops on focusing, Gendlin reported giving participants permission to clarify what was said several times, ensuring them it was “normal”

to need clarification, and creating some humor and humility by offering examples of his own lapses and mistakes (Gendlin, 1978). More recently, Fassaert, van Dulmen, Schellevis, and Bensing (2007) developed an Active Listening Observation Scale (ALOS-global) to quantify this kind of mindfulness.

While there is a natural tendency for students to return to a more typical unstructured conversation, the respect and trust created in the paired interaction generally slows down the premature tendency toward fixed opinions and views (Sable, 2007). The process leaves more space for each person to reconsider for themselves what they have written for their weekly journal.

Inquiry

Having read, listened and reflected back what was said, the next interactive stage is inquiry. Inquiry is open-minded curiosity by the listener, including suspension of initial assumptions about what the reader meant. Critical thinking scholars agree this recognition and suspension is a key element to effective communication (Facione & Facione, 2007; Lee, 2004; Paul, 1995). The objective of reflective inquiry is to help the reader explore what they wrote and to discover what meaning was actually communicated, as opposed to what the reader may have intended. At the same time, the listener explores his or her understanding of the reader's work through genuine inquiry: questions about the reader's journal entry and its meaning. Genuine inquiry is distinguished from asking leading questions based on the listener's first impressions, "putting words in someone's mouth" (Isaacs, 1999). For example, inappropriate leading questions are of the form "Did you mean to say . . .," "Would ___ be a better word?" Genuine inquiry tends to ensure depth of understanding; however to do it without projecting one's assumptions and preferences is generally challenging for students, especially in the early weeks of practice (Sable, 2004).

The instruction to the listener is:

Inquiry

Ask questions to clarify what the first person meant. The purpose here is not to persuade the person to a different point of view, get agreement or disagreement. The purpose is to help yourself and the reader understand in more depth what he or she meant. For example, you could start with the words that the reader spoke "What did you mean by _____?" "Can you say more about _____?" Avoid leading questions such as "When you said 'x' did you mean 'y?'" or "I thought your journal entry meant _____, didn't it?"

From inquiry, students begin to generate new meaning derived from interaction. For the listener, inquiry is intended to reveal further what assumptions were made and how well the listener understood what was read. For the reader, inquiry reveals what was actually communicated, whether the written contemplation was clear or ambiguous. Inquiry at this more intimate level creates an eagerness for new information and perspectives (Brookfield, 1995; Driscoll, Sable, & van Esch, 2005).

Inquiry is an expression of two other aspects of critical thinking: concern to become and remain generally well-informed, and general inquisitiveness (Facione, 1990; Paul, 1990). Often these aspects are clouded by habitual thinking, and proposed research on reflective

interaction hypothesizes that through practice, inquiry can heighten honesty in facing one's own biases, prejudices, stereotypes, and egocentric or sociocentric tendencies.

At this point in the reflective interaction process the instructor signals the pairs to switch roles, so that the first readers become the listeners and the process is repeated with equal time for the new reader.

Dialogue

Dialogue is a flow or “stream of meaning between” participants (Bohm, 1996) as opposed to the typical argumentative debate or discussion where views are dissected and individuals begin by advocating for their position. Dialogue strengthens the possibility that the students will engage each other's points of view rather than merely defend against the other's point of view. Of course, one student may simply agree with or take on the other's point of view. But, if the interaction moves to dialogue, they can not only choose from the existing alternatives, they can generate a third point of view, a synthesis or transcending alternative. “The most important parts of any conversation are those that neither party could have imagined before starting” (Isaacs, 1999).

The instruction is:

Explore the contemplation not solely from personal points of view, but by creating a new meaning based on shared experience. Share previous knowledge and use interpretation, analysis, evaluation, and inference in light of your shared experience.

“In order for socially determined difference to be authentically recognized, while still providing the possibility of agreement, participants in dialogue must move beyond their own perspective” (Endres, 1996, p. 7) (Endres, 1997). The notion that new meaning is more likely to emerge from dialogic collaboration is supported by social constructivist research on meaning-making (Gergen, 1999). Once students have become familiar with the reflective interaction process up to this stage, if they are more likely to engage and respond to each other with genuine and respectful communication (Sable, 2004, 2007). What they are learning is experienced as more than abstract; it has emerged from interaction and is grounded in experience (Kolb, 1984).

Paired interaction creates an additional dynamic to the classroom. Students are less caught in drawing out the instructor to provide the “right answer” when the format returns to the open classroom discussion model. They are more likely to be personally engaged and more disposed to apply all the core critical thinking skills to find new meaning. At this point, the reflexive disposition for self-discovery, seeing systems, relationships, and sustainable solutions to complex problems should be primed.

Facilitated Class Discussions

When paired interactions are finished, the instructor reassembles the whole class. Even an unstructured, open discussion at this point may be qualitatively different than ordinary post-lecture discussion in that students are more prone to respond to each other rather than direct all their attention to the lecturer. Students begin to appreciate that they can learn from each other or help each other, as well as learn from the instructor.

The instructor may initiate the class discussion by asking for a volunteer to read their journal entry to the class or summarize their interaction. Or the instructor can start with Hedburg's three questions: what am I learning about the subjects studied? what am I learning about myself? what societal meaning does my learning have? It can be valuable to capture highlights on the whiteboard and provoke further inquiry using the words and insights of the students. The instruction is:

Where there is divergence, the point is not to arrive at agreement or consensus. The point is to encourage each other to hold what appear to be divergent views as if you could exchange places with each other. It is then possible that some new understanding may emerge, something generated from present experience through reflective interaction.

In the final stage, the instructor encourages the students to explore their own language further by paraphrasing, inquiry and dialogue. The purpose of facilitated class discussion is to engage the fresh language contributed by the students to explore the meaning and implications of the subject matter. Students own contributions are being acknowledged, shared, explored, and put in the context of the learning objectives.

Results of Reflective Interaction

A student who has been part of the reflective interaction process described above wrote at the end of the term:

I feel that I am becoming more aware of how I fool myself regularly. It is constant with brief flashes of awareness that I cling to. I must be so careful of my motivation, why I want that awareness...I want to be a part of society, a contributor, but on my own terms. It's hard to examine life, lifestyle, community...take what you want or accept and then discard the rest because the problem is, why do you want it?

Students who are asking such questions now and not rushing to safe or expedient conclusions will be more aware of their habits of mind and be open to reframing the way they see problems as they interact with their peers.

Conclusion

Finally, as Taylor (2005, pg. 4) describes based on similar approaches,

“one's development as a critical reflective thinker is like a personal journey into unfamiliar or unknown areas. Both involve risk, open up questions, create more experiences than can be integrated at first sight, require support, yield personal change, and so on. This “journeying” metaphor differs markedly from the conventional philosophical view of critical thinking as scrutinizing the reasoning, assumptions, and evidence behind claims. Instead of the usual connotations of ‘critical’ with judgments and finding fault according to some standards (Williams 1983, 84ff), “journeying” draws attention to the inter- and intra-personal dimensions of people developing their thinking.”

Oxfam Great Britain President Barbara Stocking, a cofounder of the Global Sustainable Food Laboratory (a cross-sector alliance of corporations and NGOs focused on food production) says, "We simply have to face the fact that these large systemic problems are going to continue to get worse if we don't start working together. This will not be easy. For example, many in the NGO world do not much like big business. But we must decide what is more important: our past politics or the future we hope to influence" (Senge, 2008, pg. 249). Reflective interaction, especially listening and inquiry, may be a far more effective strategy for collaboration than advocacy to expand the boundaries of people's thinking in such cases.

Collaboration depends on three capabilities: convening, listening, and nurturing shared commitment (Senge, 2008). Collaboration demands the best in people, particularly when it involves people from different stakeholder groups with different goals and little history of working together. Successful collaboration may likely depend on development of a reflexive disposition, an underlying attitude committed to multilogical investigation and suspending judgments long enough so that new perspectives and new meaning can come to light in the thinking process. It includes the humility to recognize that "you don't know," at least with certainty, and the confidence to admit it. It includes a kind of morality to feel there is something wrong in acting as if you know when you don't. The reflective practices in this paper are aimed at strengthening such underlying attitudes amongst all university students, not just business school students, and providing faculty with an array of pedagogical practices to make this possible.

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Management Science & POM - Recherche Opérationnelle & Gestion des Operations et Production

ASB 2010
Halifax, Nova Scotia

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PRICE, REBATE AND ORDER QUANTITY DECISIONS IN A NEWSVENDOR FRAMEWORK WITH REBATE-DEPENDENT RECAPTURE OF LOST SALES³

This paper analyses the decision situation of a retailer that faces single period uncertainty and price-dependent demand, with an opportunity to backlog the lost sales by offering some incentive for waiting. The backlog fill rate is modelled as a function of the proportion of the rebate to the price.

Introduction

This paper considers the buying and ordering policies of a newsvendor-type retailer, faced with the possibility of backordering at least some of the shortages incurred from demand underestimation. The backordering occurs through an emergency purchase of the items in question at some premium over the regular purchasing cost. In turn, the retailer offers to the end-customers left out of the initial sale a rebate incentive upon purchase of each item backordered.

The problem of backordering shortage items has been considered recently by Weng (2004) and Zhou and Wang (2009). Both generalize the newsvendor problem (heretofore NVP) into a two-step decision process. In the first stage, the retailer places the initial order that renders equal the costs of over- and under-estimation of the demand, as corresponds to

³ Acknowledgements. Financial assistance for the completion of this research from the Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council of Canada is gratefully acknowledged. The first-mentioned author also wishes to acknowledge the support from Spain's Ministry of Education and Science, project SEJ2007-67737-C03-02/ECON.

the traditional NVP. In the second, the retailer may place a special order from the manufacturer at the end of the selling season. The basic difference between the two models strives in whether the manufacturer (Weng, 2004) pays for the setup costs of the special order or both parties (Zhou and Wang, 2009) share in the payment of such cost.

Our model differs from these two in five fundamental ways. First, we consider a price-dependent demand, with the selling price, a decision variable, more in accordance with the main tenets of microeconomic theory (e.g. Arcelus and Srinivasan, 1987). Second, we introduce a rebate-dependent fill rate, β , representing the probability of the end-customers returning to satisfy the unfilled demand. This fill rate is a function of the size of the rebate offered relative to the selling price and of the credibility of the rebate policy among the end-customers with unfilled demands. Third, the policy decisions on the emergency order and on the rebate policy occur up front, along with the remaining ordering and pricing policies, rather than at the end of the season, thereby rendering the resulting formulation into a more traditional one-stage, rather than a two-stage, NVP. Fourth, the decision variables are the selling price, the order size and the rebate offered as an incentive to satisfy at least a portion of the unfulfilled demand. We show that our model yields a unique profit-maximizing solution, for a family of deterministic mean demand functions and of probability distributions of the demand error that encompasses the vast majority of the models in the existing literature. Fifth, we compare and contrast empirically the implications of using different probability distributions for the demand error on the retailer's profit maximizing ordering rebate and pricing policies.

The organization of the paper is as follows. The next section presents the formulation of the model, based upon that of Zhou and Wang (2009), to which we add the offering of a price rebate per backordered unit purchased. The contributions resulting from this addition are listed in the previous paragraph. We describe the characteristics of the model, develop the objective function and derive the profit-maximizing optimality conditions that are shown to be unique. Section 3 presents a numerical example. In addition to illustrating the main features of the model and discussing some comparative statics of interest, this section attempts to conjecture the behavioural relationship between various parameters and variables. A Conclusions section completes the paper. Table 1 lists the notations used throughout the paper.

Model Formulation

In this section, we describe the key characteristics of the model, formulate the retailer's profit-maximizing objective function and derive the optimality conditions. Observe that, in the development of the models, the arguments of the functions are omitted whenever possible, to simplify notation.

Characteristics of the Model

The first characteristic identifies the key properties of the demand functions used in this paper.

Characteristic 1: The demand function.

1.1 The random single-period total demand, $D(p,\varepsilon)$, is of the form:

$$D(p, \varepsilon) = g(p) + \varepsilon, \quad \text{if additive error} \quad (1)$$

$$g(p)\varepsilon, \quad \text{if multiplicative error}$$

1.2 $g(p)$ has an IPE or increasing price elasticity, e , which satisfies the following condition:

$$e' = \frac{\partial e}{\partial p} = \frac{\partial g}{\partial p} \frac{p}{g} \geq 0$$

1.3 ε has a GSIFR or generalized strict increasing failure rate, s_ε , since

$$s'_\varepsilon = \partial s_\varepsilon / \partial p \geq 0, \quad \text{where } s_\varepsilon = \varepsilon f / (1 - F)$$

Table 1: Notation

p	The selling price per unit
Q	The order quantity
r	The rebate per backordered item
D	The total demand rate per unit of time
g, ε	The deterministic and stochastic components, respectively, of the total demand
A, B	The upper and lower values, respectively, of ε
μ, σ	The mean and standard deviation, respectively, of ε
f, F	The density function and the cumulative distribution function, respectively, of ε
a, b	The intercept and slope, respectively, of the deterministic linear demand function
δ, γ	The intercept and the demand elasticity, respectively, of the iso-elastic deterministic demand function
β	The fill rate
k	The scepticism factor of the rebate campaign
α	The upper limit on non-coupon purchases
z	The stocking factor
Φ, A	The expected number of shortages and leftovers, respectively
e	The price elasticity of demand
s_ε	The generalized failure rate function

Observe in (1), that the total demand includes a deterministic component of g units, denoted as the mean demand and a stochastic element, ε . Following the customary conventions of the literature on the subject, the relationship between g and ε is assumed to be either additive (Mills, 1958) or multiplicative (Karlin and Carr, 1962), with the former (latter) exhibiting a constant (variable) error variance and a variable (constant) coefficient of variation. Chan, et al. (2004), Lau, et al (2007), Petruzzi and Dada (1999) and Yao, et al. (2006) discuss the implications of these assumptions and provide a review of the extant works on the field.

Furthermore, unless otherwise stated, there is no need to identify a functional form of the mean demand, $g(p)$. The results presented here are applicable to all the demand distributions normally used in the sales-promotion field, i.e. linear, iso-elastic, log-concave or concave in p and the like (Yao, et al. (2006). The only requirements for the deterministic demand function are that g be downward sloping and at least twice differentiable, with respect to p . In addition, observe that the deterministic portion of the demand is not a function of the backlogged rebate, since the rebate is not intended to increase the total demand, but only to

encourage those end-customers left out at the first stage to return and avail themselves of the emergency stock at the regular selling price, p , minus the rebate of r per unit.

Similarly, there is no need either to identify a probabilistic distribution for the stochastic demand component, ε . All that is needed is that it be defined over a finite range $[A,B]$ and have a mean of μ , a standard deviation of σ , a density function of $f(\cdot)$ and a cumulative density function of $F(\cdot)$. If needed, rescaling the error to produce a different mean value is straightforward. Furthermore, as Yao, et al (2006) indicates, the probability distributions belonging to the *GSIFR* class include the most widely used in the literature such as uniform, normal, beta, gamma and the like.

Characteristics 1.2 and 1.3 (e.g. Aydin and Porteus, 2009; Yao, et al, 2006) represent considerable generalizations from the current practice in the revenue management literature of using specific demand and probabilistic distribution functions. The model is general enough to be applicable to all distributions, satisfying Characteristic 1. Yao, et al. (2006) lists the studies where the mean demand distribution is IPE and the random error distribution, GSFIR, regardless of whether the resulting total demand is modelled in the multiplicative (Table 1) or additive way (Table 2). Further, as Theorem 1 of Yao, et al. (2006) demonstrates, the use of this family of distributions ensures the uniqueness of the resulting optimal policies. Detailed proofs of these results appear in Yao (2002).

Characteristic 2. A fill rate, β , given by the following expression:

$$\beta = \alpha k + (1-k)r/p, \quad 0 \leq \alpha \leq 1, \quad 0 \leq k \leq 1, \quad r < p, \quad 0 < \beta < 1 \quad (2)$$

The fill rate, β , measures the fraction of end-customers returning to fulfill their demand from the emergency order. Its functional form in (2), rooted on the empirical literature on the subject, satisfies several properties of interest. First, it is a function of the value of the rebate relative to the selling price, r/p , and of the rebate's credibility among the prospective end-customers. Second, the value of β falls between 0 and 1, but does not approach either value. This reflects empirical findings that indicate that, even if there is no rebate, some buying will always take place. As Bawa and Shoemaker (1989) point out, this implies that there is still some "exposure effect" to the original sale that leads some end-customers to purchase, even in the absence of a coupon, i.e. (even when $r=0$, $\beta>0$). Further, as the coupon value increases, so does the incentive effect, thereby raising the fraction of end-customers purchasing the emergency merchandise. This claim requires $1-k>0$. On the other hand, as $r/p \rightarrow 1$, not all end-customers will return, i.e. ($\beta < 1$). Rather, some will prefer shopping for a better price, rather than being enticed by additional new incentives (e.g. Alford and Biswas, 2002), i.e. $\alpha k + (1-k) < 1$. Third, the αk factor is intended to disentangle the independent effects on β of $k \rightarrow 1$ and of $r \rightarrow 0$. In both cases, β becomes independent of r/p , but the literature provides no rationale for both providing the same impact on β . Hence, as $k \rightarrow 1$, $\beta \rightarrow \alpha$ and this may be interpreted as the upper limit on non-coupon purchases. This leads to defining k , as a scepticism factor, proportional but inversely related to the credibility of the rebate. Then, the higher the value of k is, the lower the credibility of the rebate will be and, thus, the closer β is to its upper limit, α . Further along these lines, α may be considered as a moderator factor on k . As $r \rightarrow 0$, β does not necessarily have to go to the upper limit, but to a lower value, given by αk , unless empirically demonstrated otherwise. Finally, the fill rate has an additional useful property, stated in the following Proposition.

Proposition 1. The price and rebate elasticities of the fill rate, $\varphi(\beta, p)$ and $\varphi(\beta, r)$, are equal in value, but of opposite sign.

Proof. Using (2), it can be readily shown that the following holds correct:

$$\left. \begin{aligned} \varphi(\beta, p) &= \beta'_p(p/\beta) = -(1-k)r/\beta p \\ \varphi(\beta, r) &= \beta'_r(r/\beta) = (1-k)r/\beta p \end{aligned} \right\} \Rightarrow \varphi(\beta, p)/\varphi(\beta, r) = -1$$

with $\beta'_p = (\partial\beta/\partial p) = -(1-k)r/p^2$ (3)

and $\beta'_r = (\partial\beta/\partial r) = (1-k)/p$

This justifies Proposition 1.

Characteristic 3. *The stocking factor:*

$$\begin{aligned} z &= Q - g, \quad \text{if additive} \\ &= Q/g, \quad \text{if multiplicative} \\ \Theta &= \int_z^B (\varepsilon - z) f(\varepsilon) d\varepsilon \\ \Lambda &= \int_A^z (z - \varepsilon) f(\varepsilon) d\varepsilon = \Theta + z - \mu \end{aligned} \quad (4)$$

where Θ and Λ represent the expected number of shortages and leftovers, respectively, as a result of demand fluctuations. The shortage level is expected to decrease with the rebate incentive. With respect to the stocking variable, z , it was introduced by Petruzzi and Dada (1999) and subsequently used by Arelus, et al (2005), among many others, as a replacement for another decision variable, namely the order quantity. It represents the expected level of leftover and shortages, generated by the demand uncertainty and by the retailer's optimal policies. Its inclusion simplifies the interpretation of the findings of the current study and the derivations of the optimality conditions.

The retailer's profit-maximizing objective

The retailer profit function is decomposable into two parts, depending upon whether the retailer order quantity exceeds or understates the demand for the product. If the first, then Q exceeds D and the retailer sells D units at p per unit, disposes of the rest at a salvage value of v per unit and incurs an acquisition cost of c for each of the Q units ordered. If the second, Q is below D , in which case the retailer buys and sells the Q units at a profit margin of $(p-c)$ per unit, acquires a fraction β of the shortage demand at a premium d per unit, sells it at the regular selling price, p , net of the per unit rebate offered, r , and pays a shortage penalty on the rest of the merchandise. Formally, the functional form of the retailer's profit function, $\Phi(p, Q, r)$, is as follows:

$$\begin{aligned} \Phi(p, Q, r) &= pD - cQ + v(Q - D), \quad \text{if } Q \geq D \\ &= (p - c)Q + [(p - r) - (c + d)]\beta(D - Q) - s(1 - \beta)(D - Q), \quad \text{if } Q \leq D \end{aligned} \quad (5)$$

The objective is to find the levels of p , Q and r that maximizes $E(P, Q, r)$, the retailer's expected profit. Using (4) and (5), it can be readily seen that E may be written as follows:

$$\begin{aligned} E(p, Q, r) &= (p - c)(g + \mu) - (c - v)\Lambda - [(p - c + s)(1 - \beta) + \beta(r + d)]\Theta, \quad \text{if additive} \\ &= (p - c)g\mu - g(c - v)\Lambda - g[(p - c + s)(1 - \beta) + \beta(r + d)]\Theta, \quad \text{if multiplicative} \end{aligned} \quad (6)$$

To simplify the explanation, only the additive-error/linear-demand case will be discussed. The results for the multiplicative-error/exponential-demand case appear in the Appendix.

First-order optimality conditions

Let $E'_i = \partial E / \partial i$, $i = p, r, Q$ be the first derivative of the expected profit with respect to each of the decision variables. Setting these derivatives to zero, we obtain the following first-order optimality conditions.

$$\begin{aligned} E'_p = 0 &= (g + \mu) + g'_p(p - c) - (1 - \beta)\Theta + (p - c + s - r - d)\Theta\beta'_p \\ E'_r = 0 &= \Theta\beta'_r(p - c + s - r - d) - \Theta\beta \\ E'_z = 0 &= -(c - v) - \Theta'_z[(p - v + s) - \beta(p - c + s - r - d)] \end{aligned} \quad (7)$$

where β'_p and β'_r are defined in (3). The optimality conditions in (7) have straightforward economic interpretations. All represent tradeoffs between profit gains and losses associated with unit changes in p , r and Q , respectively. With respect to the first, a one-dollar increase in price generates (i) a profit increase of $\$(g + \mu)$ from the units sold; (ii) minus a loss of $\$g'_p(p - c)$, from the decrease in demand caused by the price increase; (iii) minus an opportunity cost of the shortages not sold even with the emergency order; and (iv) opportunity cost on the decrease of the fill rate due to the price increase. As for the second, a one-dollar increase in the in the shortage rebate, r , results in (i) an increase in profits from the associated rise in the fill rate ($\beta'_r > 0$, from (3); and in (ii) an increase in the rebate costs from the back-logged end-customers purchasing from the emergency order. The third condition indicates that a one-dollar increase in the stocking factor results from the marginal profit changes in the expected leftovers, together with the opposite weighted marginal profits in the expected shortages, with the weights representing the percentage of returning and not returning customers.

Numerical Analysis

This section presents a numerical illustration of key properties of the model just described, to illustrate the main features of the various solutions proposed in the paper. We start with the evaluation of a numerical analysis that serves as the base-case example for all subsequent studies and that standardizes the information presented in the ensuing tables. Then, we study the impact of fluctuations in the rebate's scepticism factor k , and in the upper limit on non-coupon purchases, α , upon the fill rate, β , and through it, upon the retailer's profit-maximizing pricing, ordering, rebate policies. For these purposes, we fix α at 0.5 and let k fluctuate from 0.10 to 0.44 in intervals of 0.05. Finally, we compare and contrast the optimal retailer's policies across various probability distributions for the demand error, namely the uniform, the normal and the beta distributions. All computations were carried out with NLPSOLVE of MAPLE's Optimization toolbox.

The starting point of our empirical analysis consists of two sets of five examples that serve as the basis for the analysis of this section. One set, denoted by *AL (MI)*, assumes the

deterministic demand, g , to be linear (iso-elastic) and its stochastic counterpart, D , additive (multiplicative). For comparability purposes, this section operates with the parameter values of Arcelus, et al. (2005), to which suitable values for the remaining parameters have been added. In this way, any sensitivity analysis can be carried out by adroit manipulation of the appropriate parameter values for any of these five base-cases. Two of them refer to symmetrical distributions, namely the uniform and the normal and the other three, to the beta distribution. The latter has been selected because of its flexibility to accommodate observed phenomenon, through appropriate changes in the distribution parameters, that can yield symmetrical ($[A,B]=[3,3]$) or asymmetrical distributions, be they left-skewed ($[A,B]=[1,3]$) or right-skewed ($[A,B]=[3,1]$).

Some Concluding Comments

The primary contribution of this paper has been to consider the impact upon the ordering and pricing policies of a newsvendor-type, profit-maximizing retailer, faced with the possibility of backordering at least some of the shortages incurred from demand underestimation, by offering some rebate incentives for waiting. The backordering occurs through an emergency purchase of the items in question at some premium over the regular purchasing cost. In turn, the retailer offers to the end-customers left out of the initial sale a rebate incentive upon purchase of each item backordered, quite aware that not all the customers that could not buy in the first instant may avail the rebate offer and buy. The backlog fill rate, representing the probability of the end-customers returning to satisfy the unfulfilled demand, is modelled as a function of the size of the rebate offered relative to the selling price and of the credibility of the rebate policy among the end-customers with unfulfilled demands. Further, the policy decisions on the emergency order and on the rebate policy occur up front, along with the remaining ordering and pricing policies, rather than at the end of the season. Then the retailer has to decide, ahead of the realization of the demand, the profit-maximizing ordering, pricing and rebate policies. The decision variables are the selling price, the order size and the rebate offered as an incentive to satisfy at least a portion of the unfulfilled demand.

The numerical analysis has provided some interesting economic insights into the nature of the retailer's decision-making problem, especially now that it is possible to use a variety of probability distributions to model the stochastic portion of the demand, with different degrees of asymmetry and to contrast the additive and multiplicative envelopes that the evidence projects. The evidence clearly illustrates the direction and magnitude of the changes in the retailer's ordering and pricing policies, as a result of the fluctuations in $\alpha(k)$, for a constant k (α). Only the optimal rebates experience substantial modifications in magnitude, whereas at the optimum, the fill rates, the pricing and ordering policies, the expected shortages and leftovers and the profit level remain at a relatively stable levels, even if, as shown in the previous section, the directions of the effects follow intuitively expected economic paths.

Finally, a study of this type is open to a variety of extensions and generalizations. Of particular interest to the authors is the evaluation of different incentive types to induce higher fill rates, the impact of risk on the retailer's decisions. The study of these and other issues justifies additional research.

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ABS 2010
Halifax, Nova Scotia

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A TWO-STAGE SUPPLY CHAIN WITH INSPECTION ERRORS AND LEARNING IN PRODUCTION¹

It is imperative for the firms today to continuously look for ways to improve their performance. Coordination is a tool that is frequently employed for this purpose. Common cycle time, quantity discounts and delay in payments are some of the coordination strategies between the stakeholders in a supply chain. An important issue which is missing in the supply chain literature is incorporating human factors such as inspection errors and learning. This paper develops a simple approach to determine an optimal vendor-retailer inventory policy that accounts for inspection error at the retailer's end and learning in production at the vendor's end. The objective is to minimize the joint annual cost incurred by the supply chain. A numerical example is presented to illustrate the significance of the model presented.

Introduction

The use of the economic order/production quantity model is quite common for about hundred years in the literature concerning inventory (Simpson, 2001). This model is a trade-off between the holding cost and ordering cost of a buyer. Although this model has been so widely used it has several weaknesses. For example a steady demand from the retailer or the supply of perfect quality products from the vendor, etc. is usually out of question. These assumptions paved the path for many researchers. The example of such literature could be Porteus (1986), Rosenblatt and Lee (1986) and Silver (1976).

Inspection errors have been a critical aspect of single sampling and repeat inspection plans, but they still need to have due attention in the inventory management literature. These errors can be serious in case of some critical components, for example, parts of an aircraft or a complex gas ignition system. Some researchers have suggested the use of repeated inspection for critical components Swain (1970) at a nominal increase in the inspection cost. Bennett *et al.* (1974) investigated the effects of inspection errors on a cost-based single sampling plan. Raouf *et al.* (1983) developed a model for determining the optimal number of repeat inspections for multicharacteristic components while there are Type I and Type II errors in the inspection process. Duffuaa and Khan (2002) extended Raouf *et al.* (1983) model by adding the classifications like rework and scrap for imperfect items rather than classifying them as defective and non-defective only.

¹ This research was funded by the Natural Sciences and Engineering Research Council of Canada (NSERC)

Learning is another essential human factor missing from the literature pertaining to inventory management and supply chain management. Some of the researchers have used this aspect while determining lot sizes but there is no model, to our knowledge, that would have considered learning in a supply chain context. Learning is inherent when there are workers involved in a repetitive type of a process. This natural phenomenon affects production time, product quality and the inspection errors too, with the passage of time. A learning process is described by a power curve suggested by Wright (1936). Wortham and Mayyasi (1972) was one of the first inventory model that studies the impact of learning on economic order sizes. Salameh *et al.* (1993) investigated the effect of learning in a finite production process.

Salameh and Jaber, (2000) provided a new direction to the literature on inventory management. They presented a simple EOQ model for imperfect items. This paper has been getting more and more attention recently. They assumed that (i) an EOQ lot contains certain percentage of defective items, which is a continuous random variable with known probability density function, (ii) a 100% percent inspection of the lot is conducted, (iii) demand occurs parallel to the inspection process and is fulfilled from goods found to be perfect by the inspection process (iv) there are no shortages, and (v) items of poor quality are kept in stock and sold prior to receiving the next shipment as a single batch at a discounted price. Many researchers have extended this model for a number of production situations. Few of these are Goyal and Cárdenas-Barrón (2002), Goyal *et al.* (2003), Wang (2005), Papachristos and Konstantaras (2006), Wee *et al.* (2007), Eroglu and Ozdemir (2007), Konstantaras *et al.* (2007) and Maddah and Jaber (2008, 2008).

Banerjee (1986) was one of the first models that discussed the coordination between a vendor and a purchaser. He developed a joint economic lot size model where a vendor produces on a lot-for-lot basis, for a purchaser. Such models were extended to include integrated production, quality inspections, and maintenance decisions by Ahmad (1997), Ben-Daya and Rahim (1999), Ben-Daya and Rahim (2003a), and Ben-Daya and Rahim (2003b). However, crucial human factors like learning were not addressed in those extensions. Ha and Kim (1997) studied the integrated decision of the buyer and the vendor using geometric programming. Yang and Wee (2000) extended the model proposed by Ha and Kim (1997) to the deteriorated items. Huang (2002) extended the model by Salameh and Jaber (2000) for a two level supply chain by adopting the equal shipment size policy in the integrated vendor–retailer inventory model with defective items. Recently, this integrated inventory management has received a great deal of attention.

In this paper an equal lot size policy is adopted for a two-level vendor-retailer supply chain. The vendor (manufacturer) follows an EPQ policy to manufacture a single product. The coordination mechanism is such that (i) the vendor receives the retailer's demand produces the single product; (ii) the vendor replenishes the order in a number of equal-sized shipments. Besides, we assume that (i) the vendor experiences learning in the production process, (ii) some of the products are defective (iii) the retailer institutes an inspection process as suggested by Salameh and Jaber (2000), and that (iv) this inspection process is prone to Type I and Type II errors. The defective products from the vendor may be a result of weak process control, deficient planned maintenance, inadequate work instructions and/or damage in transit Ouyang *et al.* (2006). An equal-shipment-size coordination between vendor and retailer is described with fixed

and variable transportation cost. An optimal lot size and the annual cost are determined for the two level supply chain. The model is then extended to include Type I and Type II errors in the retailer's screening process. In the second extension, the vendor's production process is assumed to follow Wright (1936) learning curve, thus affecting the production time. An optimal lot size, the number of shipments and the annual cost of the supply chain are determined for each of these extensions.

The rest of the paper is arranged as follows: In section 2, model formulation is provided. Section 3 presents numerical examples for the base model and the extensions. Section 5 presents conclusions, limitations and some suggestions for future research.

Model Description

Consider a two level supply chain scenario with one vendor and one retailer. Let us suppose that the vendor has to make λQ products in each cycle of production. A fixed percentage γ of these products is believed to be defective. For this, the retailer institutes a 100% inspection and screens out all the defective products from the vendor lots, at a rate of x per unit time. Following Salameh and Jaber (2000) approach for defective products, we assume that each lot received by a retailer contains a fixed percentage of defectives, γ , with a known probability density function, $f(\gamma)$. Figure 1 and Figure 3 depict the behavior of the vendor's and retailer's inventory level, respectively. Figure 2 shows the accumulation of inventory at the retailer's and vendor's end. The costs considered in the model would be ordering/setup cost, screening cost, the inventory carrying cost, shipment cost and the production cost. The retailer bears the fixed and variable cost (per unit) of shipment to the retailer. An optimal production quantity and number of shipments per cycle will be determined through the total cost of the supply chain. The objective of the study would be to minimize the total annual cost through an optimal production quantity.

Nomenclature

The following nomenclature is used throughout the model.

λ	=	Number of shipments in a production cycle (a decision variable)
Q	=	Optimal shipment size (a decision variable)
T	=	Time between successive shipments
d	=	Retailer's unit screening cost
x	=	Retailer's Screening rate perceive
m_1	=	Probability of Type I error in the retailer's screening process
m_2	=	Probability of Type II error in the retailer's screening process
Γ	=	Percentage of defective products supplied by vendor
γ_e	=	Percentage of defective products observed by the retailer through screening (= $(1 - \gamma)m_1 + \gamma(1 - m_2)$)
D	=	Demand for the vendor
P	=	Vendor's production rate
c	=	Vendor's production cost per unit time
b	=	Vendor's learning exponent in the production process
i	=	An index that represents vendor's cycle of learning

- T_1 = Vendor's time to produce the first unit, in case of learning ($=1/P$)
 c = Vendor's production cost per unit time
 A_v = Vendor's fixed ordering/setup cost
 A_s = Suppliers' setup cost
 h_v = Vendor's unit holding cost for the product
 h_r = Retailer's unit holding cost for products
 M_1 = A term representing the expected value of percentage of defectives, $= E[\gamma]$, (M_{1e} in case of inspection error)
 M_2 = A term involving the expected value of percentage of defectives,
 $= \frac{1}{1-E[\gamma]}$, (M_{2e} in case of inspection error)

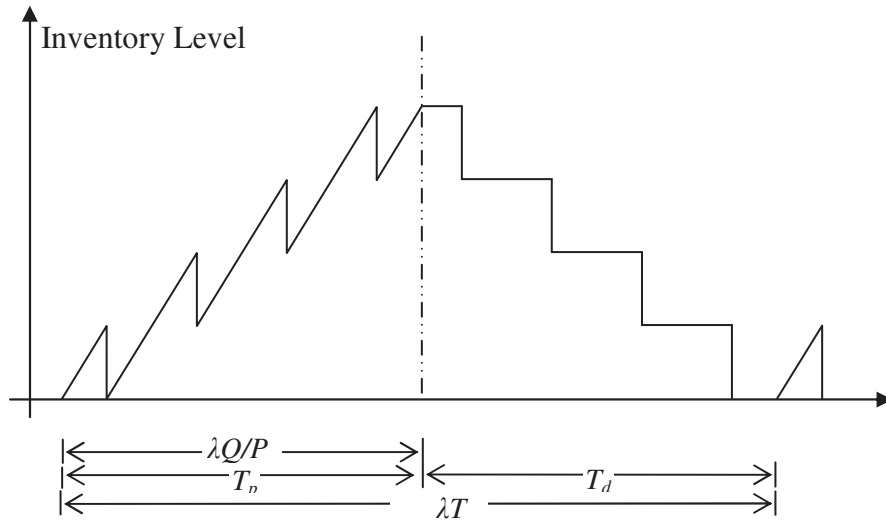


Figure 1. Vendor's Inventory Level in a Cycle with Time

The Base Model

Total inventory with the vendor in a cycle, is the sum of areas of the triangle and the rectangle with dotted line as one side, in Figure 1, i.e.

$$Area1 = \frac{1}{2}(\lambda Q/P)(\lambda Q) = \frac{\lambda^2 Q^2}{2P} \quad (1)$$

$$Area2 = \lambda Q[(\lambda - 1)(Q/D - Q/P)] = \frac{\lambda Q^2(\lambda - 1)(P - D)}{PD} \quad (2)$$

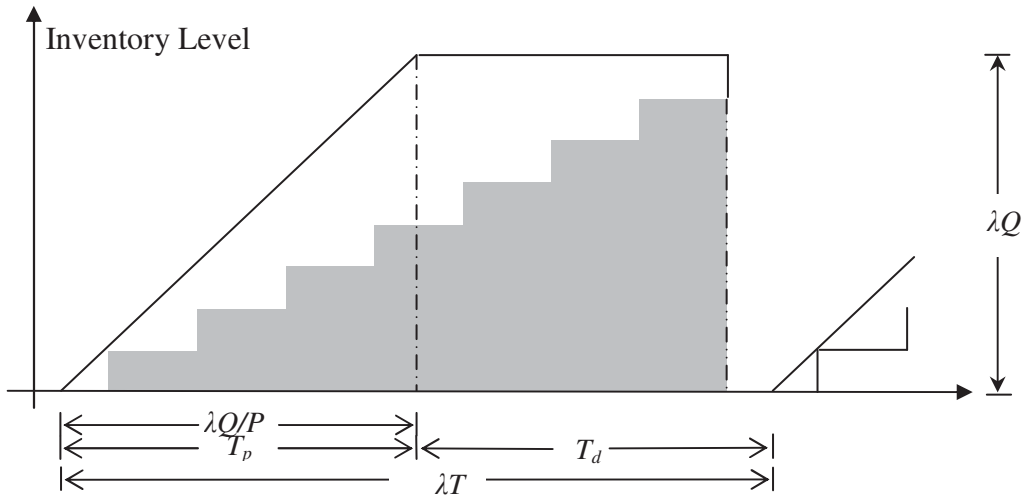


Figure 2. Accumulation and Depletion of Vendor's Inventory in a Cycle

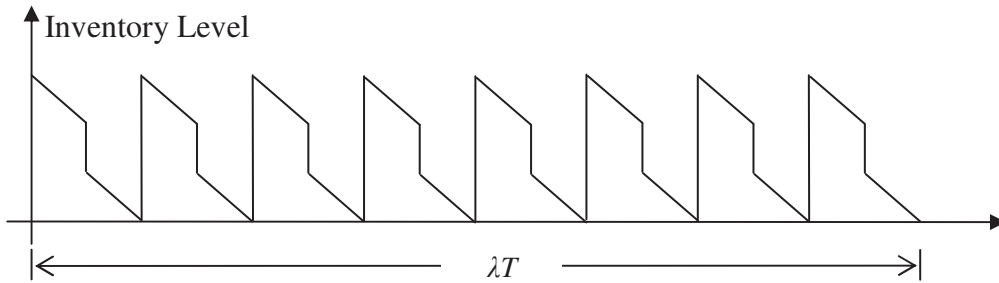


Figure 3. Behavior of Buyer's Inventory in a Cycle

The total inventory moved to the retailer in a cycle by vendor is $\lambda(\lambda-1)Q^2/2D$. So, vendor's total inventory in a cycle is

$$I_v = \frac{\lambda^2 Q^2}{2P} + \frac{\lambda Q^2 (\lambda-1)(P-D)}{PD} - \frac{\lambda(\lambda-1)Q^2}{2D} = \frac{\lambda Q^2}{2D} \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} \quad (3)$$

Vendor's total cost in a cycle is the sum of setup, carrying and production costs:

$$C_v = A_v + h_v \frac{\lambda Q^2}{2D} \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} + \frac{\lambda c Q}{P}$$

The retailer's total cost in vendor's one cycle is the sum of ordering, carrying, screening and the shipment costs:

$$C_r = A_r + \lambda h_r \left\{ \frac{Q(1-\gamma)T}{2} + \frac{\gamma Q^2}{x} \right\} + \lambda dQ$$

Total cost of the two level (vendor-retailer) supply chain in a cycle is:

$$TC = A_v + h_v \frac{\lambda Q^2}{2D} \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} + \frac{\lambda c Q}{P} + A_r + \lambda h_r \left\{ \frac{Q(1-\gamma)T}{2} + \frac{\gamma Q^2}{x} \right\} + \lambda dQ \quad (4)$$

Since γ is a random variable with probability density function $f(\gamma)$, the expected total cost of the supply chain per cycle, after rearranging the terms, is:

$$E[TC] = A_v + A_r + \frac{\lambda Q^2}{2D} \left[h_v \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} + \frac{2h_r DE[\gamma]}{x} \right] + \frac{\lambda h_r Q(1-E[\gamma])E[T]}{2} + \lambda dQ + \frac{\lambda c Q}{P}$$

$$\text{Where } E[T] = \frac{(1-E[\gamma])Q}{D}$$

Using $\lambda E[T]$ as the total cycle time, the expected annual cost, using Maddah and Jaber (2008) approach, would be:

$$E[TCU] = \frac{D(A_v + A_r)}{\lambda(1-E[\gamma])Q} + \frac{dD}{(1-E[\gamma])} + \frac{Q}{2(1-E[\gamma])} \left[h_v \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} + \frac{2h_r DE[\gamma]}{x} \right] + \frac{h_r Q(1-E[\gamma])}{2} + \frac{cD}{P(1-E[\gamma])}$$

Alternatively,

$$E[TCU] = \frac{D(A_v + A_r)}{\lambda(1-E[\gamma])Q} + \frac{D}{(1-E[\gamma])} \left(d + \frac{c}{P} \right) + \frac{Q}{2} \left[\frac{h_v}{(1-E[\gamma])} \left\{ (\lambda-1) - (\lambda-2) \frac{D}{P} \right\} + h_r \left\{ (1-E[\gamma]) + \frac{2DE[\gamma]}{x(1-E[\gamma])} \right\} \right] \quad (5)$$

$$\text{Let } M_1 = E[\gamma] \text{ and } M_2 = \frac{1}{(1-E[\gamma])}$$

$$E[TCU] = \frac{DM_2(A_v + A_r)}{\lambda Q} + \left(d + \frac{c}{P}\right)DM_2 + \frac{Q}{2} \left[h_v M_2 \left\{ (\lambda - 1) - (\lambda - 2) \frac{D}{P} \right\} + h_r \left\{ (1 - M_1) + \frac{2DM_1M_2}{x} \right\} \right] \quad (6)$$

To obtain an optimal batch size and the number of shipments per cycle from the above expression, we would equate its first derivative with respect to Q , to zero and then find the value of λ through iteration.

Inspection Errors

The screening process in most of the supply chain literature is assumed to be error-free, for example Huang (2002) and Goyal *et al.* (2003). But it is quite realistic to account for Type I and Type II errors committed by inspectors in this process. In this section, it is assumed that the inspectors at the retailer's end commit errors while screening the vendor's product. That is, they will classify some non-defective products as defectives while some defective products as non-defectives. In other words, they will attribute a percentage of defective to the vendor which is different from the actual one. Thus, the fraction of defective products as perceived by the inspectors would be

$$\gamma_e = (1 - \gamma)m_1 + \gamma(1 - m_2)$$

and

$$E[\gamma_e] = (1 - E[\gamma])E[m_1] + E[\gamma](1 - E[m_2])$$

So the time interval between successive shipments would now be:

$$E[T] = \frac{(1 - E[\gamma_e])Q}{D} = \frac{\{(1 - E[\gamma])E[m_1] + E[\gamma](1 - E[m_2])\}Q}{D}$$

$$\text{Similarly } M_{1e} = E[\gamma_e] \text{ and } M_{2e} = \frac{1}{(1 - E[\gamma_e])}$$

Thus Equation (5) and (6), for the expected annual cost of the supply chain can be written as

$$E[TCU_e] = \frac{D(A_v + A_r)}{\lambda(1 - E[\gamma_e])Q} + \frac{D}{(1 - E[\gamma_e])} \left(d + \frac{c}{P} \right) + \frac{Q}{2} \left[\frac{h_v}{(1 - E[\gamma_e])} \left\{ (\lambda - 1) - (\lambda - 2) \frac{D}{P} \right\} + h_r \left\{ (1 - E[\gamma_e]) + \frac{2DE[\gamma_e]}{x(1 - E[\gamma_e])} \right\} \right] \quad (7)$$

$$E[TCU_e] = \frac{DM_{2e}(A_v + A_r)}{\lambda Q} + \left(d + \frac{c}{P}\right)DM_{2e} + \frac{Q}{2} \left[h_v M_{2e} \left\{ (\lambda - 1) - (\lambda - 2) \frac{D}{P} \right\} + h_r \left\{ (1 - M_{1e}) + \frac{2DM_{1e}M_{2e}}{x} \right\} \right] \quad (8)$$

We will use the procedure described above to determine the optimal batch size and the number of shipments with screening errors.

Learning in Production

In this section, it is assumed that the vendor's production process follows Wright (1936) learning curve. That is, vendor produces the product at an increasing production rate which is consumed at a constant rate. Assume that every cycle of production makes Q_p (λQ) products, with a learning rate b . This situation for cycle i is described in Figure 4 and Figure 5. The production time in cycle i is

$$T_{pi} = \int_{(i-1)Q_p}^{iQ_p} T_1 x^{-b_i} dx$$

$$T_{pi} = \frac{T_1 Q_p^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{(1-b)} \quad (9)$$

So, the production quantity in cycle i can be written as

$$Q_p(t) = \left[\frac{(1-b)t}{T_1} \left\{ \frac{1}{i^{1-b} - (i-1)^{1-b}} \right\} \right]^{\frac{1}{1-b}} \quad (10)$$

Now, the average inventory of products in a cycle i during production is:

$$I_{Tpi} = \int_0^{T_{pi}} Q_p(t) dt$$

Alternatively,

$$I_{Tpi} = \frac{T_1 \{i^{1-b} - (i-1)^{1-b}\} (\lambda Q)^{2-b}}{2-b} \quad (11)$$

Time for the first dispatch after the start of production in i^{th} cycle, in Figures 4, 5 would be:

$$T_{1i} = \int_{(i-1)\lambda Q}^{Q+(i-1)\lambda Q} T_1 x^{-b_i} dx$$

$$T_{1i} = \frac{T_1 Q^{1-b} \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right]}{1-b}$$

Now we determine vendor's average inventory in a cycle. The area of the rectangles $ABEF$, $BFDH$ and $AECG$ are given by:

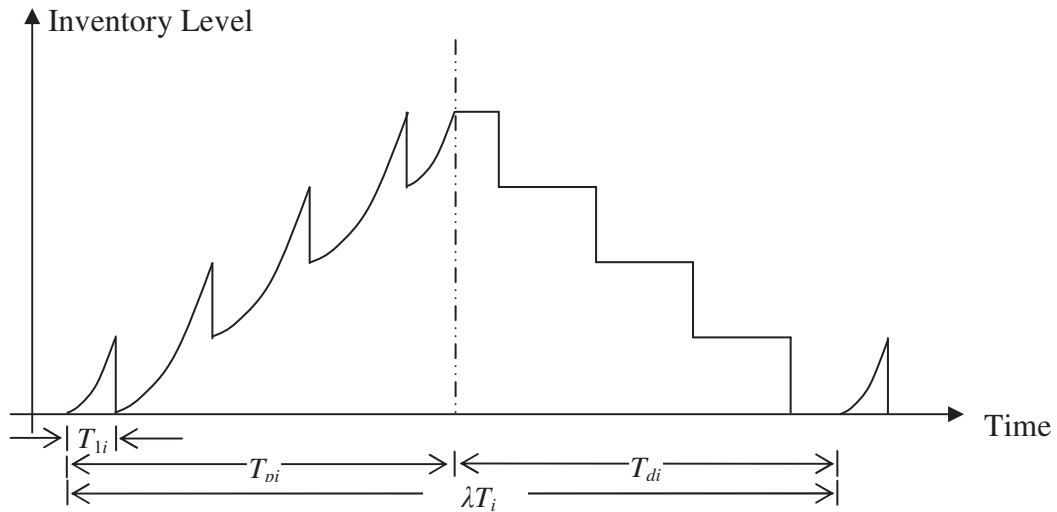


Figure 4. Vendor's Inventory Level in i^{th} Cycle with Learning in Production

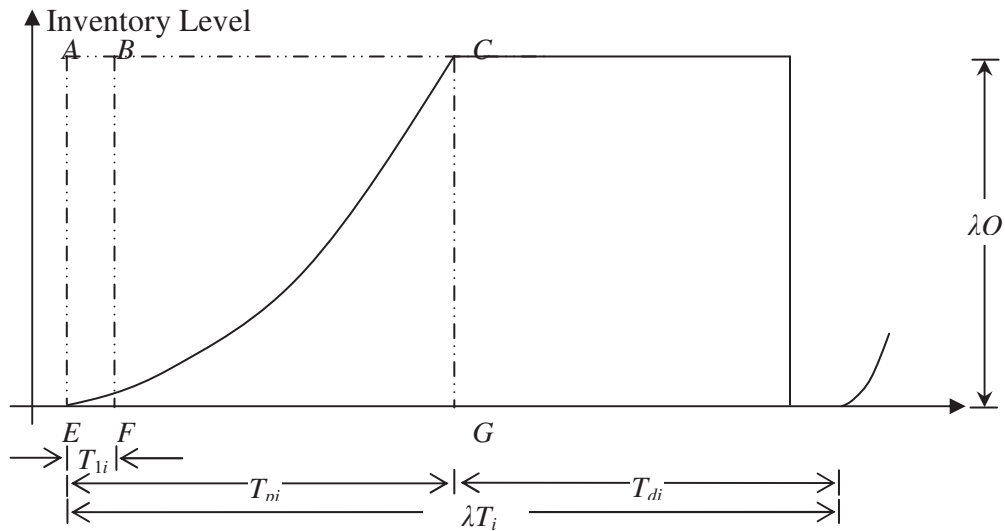


Figure 5. Vendor's Total Inventory i^{th} Cycle with Learning in Production

$$Area_{ABEF} = \lambda Q T_{pi} = \frac{\lambda T_1 Q^{2-b} \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right]}{1-b}$$

$$Area_{BFDH} = \lambda Q \left\{ (\lambda-1) \frac{Q}{D} \right\} = \frac{\lambda(\lambda-1)Q^2}{D}$$

$$Area_{AECG} = \lambda Q T_{pi} = \frac{T_1 (\lambda Q)^{2-b} \{ i^{1-b} - (i-1)^{1-b} \}}{(1-b)}$$

So, the vendor's average inventory in the depletion period in i^{th} cycle is determined from the three areas above as

$$I_{Tdi} = Area_{ABEF} + Area_{BFDH} - Area_{AECG}$$

$$I_{Tdi} = \frac{\lambda T_1 Q^{2-b} [1 + (i-1)\lambda]^{1-b} - \{(i-1)\lambda\}^{1-b}}{1-b} + \frac{\lambda(\lambda-1)Q^2}{D} - \frac{T_1(\lambda Q)^{2-b} \{i^{1-b} - (i-1)^{1-b}\}}{(1-b)} \quad (12)$$

As in Equation (3), vendor's average inventory in a cycle would be

$$I_{vi} = I_{Tpi} + I_{Tdi} - \frac{\lambda(\lambda-1)Q^2}{2D}$$

Using Equations (11) and (12):

$$I_{vi} = \frac{T_1 \{i^{1-b} - (i-1)^{1-b}\} (\lambda Q)^{2-b}}{2-b} + \frac{\lambda T_1 Q^{2-b} [1 + (i-1)\lambda]^{1-b} - \{(i-1)\lambda\}^{1-b}}{1-b} + \frac{\lambda(\lambda-1)Q^2}{D} - \frac{T_1(\lambda Q)^{2-b} \{i^{1-b} - (i-1)^{1-b}\}}{(1-b)} - \frac{\lambda(\lambda-1)Q^2}{2D}$$

Alternatively,

$$I_{vi} = \frac{\lambda T_1 Q^{2-b} [1 + (i-1)\lambda]^{1-b} - \{(i-1)\lambda\}^{1-b}}{1-b} - \frac{T_1 \{i^{1-b} - (i-1)^{1-b}\} (\lambda Q)^{2-b}}{(2-b)(1-b)} + \frac{\lambda(\lambda-1)Q^2}{2D} \quad (13)$$

It should be noted that by substituting T_1 by the initial production rate P and b by zero, the above expression reduces to Equation (3), where there is no learning. In other words, Equation (13) represents an extension of (Hill, 1997) model of equal shipments, for learning in production.

Now, vendor's total cost in a cycle is

$$C_{vi} = A_v + h_v \left[\frac{\lambda T_1 Q^{2-b} [1 + (i-1)\lambda]^{1-b} - \{(i-1)\lambda\}^{1-b}}{1-b} - \frac{T_1 \{i^{1-b} - (i-1)^{1-b}\} (\lambda Q)^{2-b}}{(2-b)(1-b)} + \frac{\lambda(\lambda-1)Q^2}{2D} \right] + cT_{pi}$$

Alternatively,

$$C_{vi} = A_v + \frac{h_v Q^{2-b}}{P(1-b)} \left[\lambda \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right] - \frac{\lambda^{2-b} \{i^{1-b} - (i-1)^{1-b}\}}{(2-b)} \right] + \frac{h_v \lambda (\lambda - 1) Q^2}{2D} \\ + \frac{c(\lambda Q)^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{P(1-b)}$$

So, the total cost of the two level supply chain with learning in production would be

$$TC_i = A_v + \frac{h_v Q^{2-b}}{P(1-b)} \left[\lambda \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right] - \frac{\lambda^{2-b} \{i^{1-b} - (i-1)^{1-b}\}}{(2-b)} \right] + \frac{h_v \lambda (\lambda - 1) Q^2}{2D} \\ + \frac{c(\lambda Q)^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{P(1-b)} + A_r + \lambda h_r \left\{ \frac{Q(1-\gamma)T}{2} + \frac{\gamma Q^2}{x} \right\} + \lambda dQ + \lambda(F + vQ)$$

The expected total cost in a cycle is

$$E[TC_i] = A_v + A_r + \frac{h_v Q^{2-b}}{P(1-b)} \left[\lambda \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right] - \frac{\lambda^{2-b} \{i^{1-b} - (i-1)^{1-b}\}}{(2-b)} \right] \\ + \frac{h_v \lambda (\lambda - 1) Q^2}{2D} + \frac{c(\lambda Q)^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{P(1-b)} + \lambda h_r \left\{ \frac{Q(1 - E[\gamma])E[T]}{2} + \frac{E[\gamma]Q^2}{x} \right\} \\ + \lambda dQ$$

and the expected annual cost is

$$E[TCU_i] = \frac{D(A_v + A_r)}{\lambda(1 - E[\gamma])Q} + \frac{dD}{(1 - E[\gamma])} + \frac{h_v D Q^{1-b}}{P(1 - E[\gamma])(1-b)} \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right. \\ \left. - \frac{\lambda^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{(2-b)} \right] + \frac{h_v (\lambda - 1) Q}{2(1 - E[\gamma])} + \frac{c(\lambda Q)^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{P(1 - E[\gamma])(1-b)} \\ + \frac{h_r Q(1 - E[\gamma])}{2} + \frac{h_r E[\gamma] Q D}{x(1 - E[\gamma])}$$

Replacing $M_1 = E[\gamma]$ and $M_2 = \frac{1}{(1 - E[\gamma])}$:

$$\begin{aligned}
E[TCU_i] = & \frac{DM_2(A_v + A_r)}{\lambda Q} + dM_2D + \frac{h_v DM_2 Q^{1-b}}{P(1-b)} \left[\{1 + (i-1)\lambda\}^{1-b} - \{(i-1)\lambda\}^{1-b} \right. \\
& \left. - \frac{\lambda^{1-b} \{i^{1-b} - (i-1)^{1-b}\}}{(2-b)} \right] + \frac{h_v(\lambda-1)M_2Q}{2} + \frac{cDM_2(\lambda Q)^{-b} \{i^{1-b} - (i-1)^{1-b}\}}{P(1-b)} \quad (14) \\
& + \frac{h_r Q(1-M_1)}{2} + \frac{h_r M_1 M_2 Q D}{x}
\end{aligned}$$

We assume that the learning in the vendor's production process plateaus to some extent after twenty cycles. Mathematica 5 can be used to find an optimal batch size and the number of shipments from Equation (14), using the following steps:

1. Set $i = 1$ and $\lambda = 1$.
2. Find an optimal value of Q and annual cost from Equation (14). Set $\lambda = 2$.
3. Repeat Step 2 till the annual cost for λ shipments is more than that of $(\lambda - 1)$ shipments.
4. Record the optimal values of Q and annual cost for $\lambda^* = \lambda - 1$.
5. Set $i = i + 1$ and $\lambda = 1$.
6. Repeat Steps 2 through 4 till $i = 20$.
7. Find an average of the number of shipments, batch size and the annual cost from the values recorded in Step 4.

Numerical Example

Consider a two-level vendor-retailer supply chain. The vendor produces a single product to fulfill the demand of the retailer. Most of the data is obtained from (Goyal *et al.*, 2003) and (Salameh and Jaber, 2000). The unit holding cost of the product at retailer's end is taken to be more than that the vendor's end which accounts for the value added during the production process. The percentage of defectives and the inspection errors (Type I and Type II) are assumed to be uniformly distributed as given by:

$$f(\gamma) = \begin{cases} 25, & 0 \leq \gamma < 0.04 \\ 0, & \text{otherwise} \end{cases}$$

$$f(m) = \begin{cases} 25, & 0 \leq m < 0.05 \\ 0, & \text{otherwise} \end{cases}$$

The results indicate that bringing in screening errors at the retailer's end makes the annual cost of the supply chain a little higher which accounts for the increase in the order size. That is, the inspectors classify some non-defective items as defectives and some defective items as non-defectives. To illustrate the effect of the inspection errors, the variation of the annual cost with these errors, for the first mechanism is drawn in Figure 6. It can be seen that for this vendor-

retailer supply chain, Type I error has a pronounced effect as compared to that of Type II error. That is, the more non-defective items are misclassified the higher is the order size and so is the annual cost of the supply chain.

Table 1. Input Data and Results of the Numerical Example

D	P	A_v	A_r	h_v	h_r	c	d	x	b	
50000	160000	300	100	2	4.8	100000	0.5	175200	0.32	
		units/yr	units/yr	\$/cycle	\$/cycle	\$/unit/yr	\$/unit/yr	\$/yr	\$/unit	unit/yr
						Ship/ Cycle	Batch Size/ Ship	Annual Cost		
		Base Model				7	779	34328		
		Inspection Errors				7	785	35391		
		Learning in Production				5	943	4899		
		Integrated Model				5	951	5017		

Learning in the vendor's production process brings in a substantial amount of saving (about 17%) to the supply chain as the production time becomes shorter and shorter in the subsequent cycles. Figure 7 indicates that this saving increases as the level of learning goes up. The batch size in this case goes up as the vendor replenishes the order in lesser number of shipments.

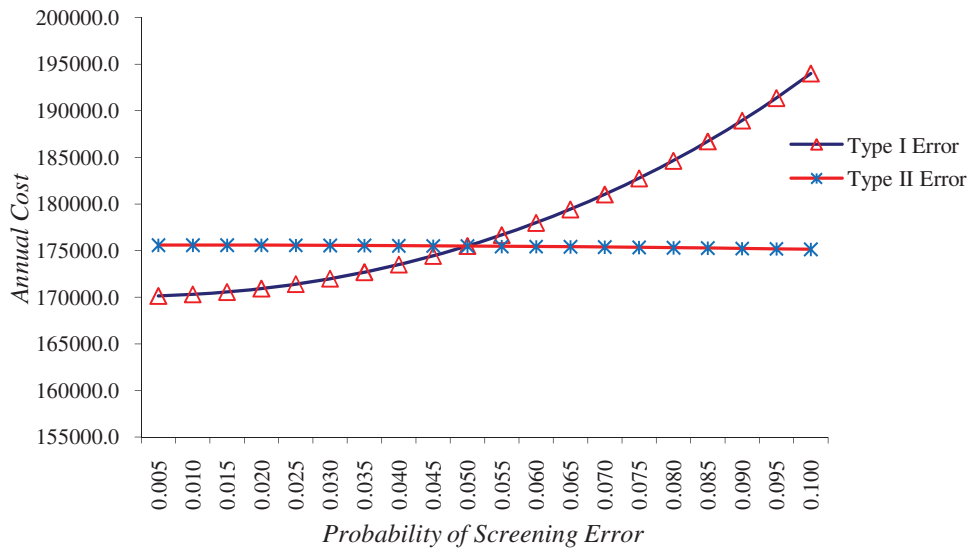


Figure 6. Effect of Screening Errors on the Annual Cost of Supply Chain

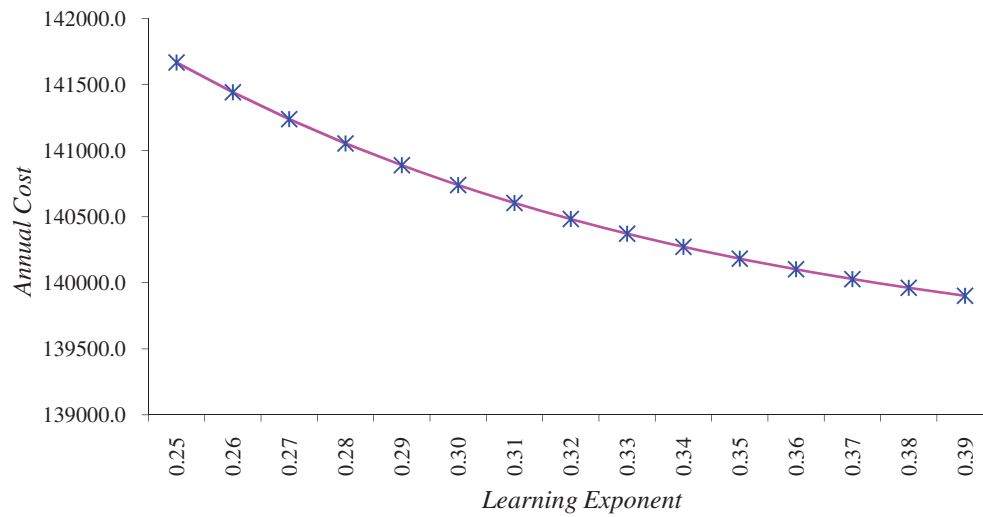


Figure 7. Effect of Learning at Vendor’s Production on the Annual Cost of Supply Chain

Studying the effects of both the above factors, that is, screening errors and learning indicates a slight increase in the supply chain cost. The rationale for this is the screening errors at retailer’s end.

Conclusions

In this paper, a two-stage, single-vendor, single-retailer supply chain is formulated. A vendor is supposed to make a single product for its retailer and it is believed that a known fraction of its lots is defective. The retailer institutes a 100% inspection process to separate these defective products. A model depicting this scenario is formulated to find an optimal batch size and the number of shipments for each order. Two human factors are brought into the picture in this paper. First of all, a scenario is considered in which the inspectors at the retailer’s end make misclassifications. This factor is shown to increase the inspection cost and thus the overall annual cost of the supply chain. Next, the production process of the vendor is assumed to follow learning as workers tend to perform the same job at a faster pace. This brings in a substantial drop in the annual cost of the supply chain. Analysis of the parameters indicated that Type I error has a pronounced effect on the supply chain as compared to the Type II errors. The rationale for this is an increased order size and thus the inspection cost. On the other hand, increasing the level of learning at vendor’s production process ends up in more and more savings to the supply chain. This study can be enhanced in a number of ways. For example, one could investigate the effect of learning in retailer’s inspection errors. Another practical situation would be to study the effects of a probabilistic demand from the retailer in response to the market’s behavior.

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ASB 2010
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USING SYNTHETIC DESIGNS, A NEW FORM OF TRUE EXPERIMENTAL DESIGN: CAN THE LENGTH OF UNIVERSITY EXAMS BE SHORTENED WITHOUT LOSING INTEGRITY OF THE TEST?

Educational researchers seldom resort to using experimental methods when evaluating teaching innovations in higher education, most likely due to the shortcomings of traditional experimental methods (between-subjects, within-subjects, and matched-subjects). We introduce a new form of experimental designs, synthetic designs, which can offer substantial reductions in sample sizes, cost, time and effort expended, increased statistical power, and fewer threats to validity (internal, external, and statistical conclusion). This new design is a variation of within-subjects design in which each subject serves in only a single treatment condition. Performance scores for all other treatment conditions are derived synthetically without repeated empirical testing of each subject. We use this new design to explore the potential for reducing exam length in four university business statistics classes. We justify synthetic designs here on three grounds: this design has been used successfully in exploring the potential for shortening the length of final exams in university courses, showing marked advantages over traditional experimental designs; a detailed comparison with traditional designs showing their advantages on all but one of the 18 criteria considered; and a description of a method that many university professors could with little effort use to address empirically the same issue of the potential for reducing their exam marking workload in their own course(s). We find conservatively that at least a one-third reduction in exam length can be achieved, which should result in reduced student fatigue and stress, increased perceived fairness by students with diverse learning styles, and reduced educators' workload.

Introduction

Recently, Kember (2003) wrote a scathing indictment of the use of experimental designs in educational research. In a brilliant critique of the weaknesses inherent in using experimental designs in educational settings together with the lack of any redeeming strengths, he strongly advocated the abandonment of experimental methods in educational research and replacing them with correlational and observational research methods. Many others, including Campbell and

Stanley (1963) and Cook and Campbell (1979), have argued in a similar vein. In their place, these authors have typically recommended the use of alternative non-experimental procedures such as quasi-experimental designs which have some, but not all, the advantages of true experimental designs when used in educational contexts. We offer another alternative.

We propose synthetic experimental designs as an alternative to traditional experimental designs that can be used to address some research questions. This new type of design, when it can be used, has virtually all the advantages and none of the disadvantages of traditional experimental designs. In this paper we show how this new type of true experimental design can be used to explore a research question of some importance: Can university exam length be reduced from three or more hours without reducing the effectiveness of the exam to assess student performance accurately? Excessively long exams can be problematic in three ways: extreme fatigue and stress on students; perceived unfairness in favoring certain learning styles; strain on already constrained educators' time. Skyrocketing class sizes have served to increase the strain on both the educators doing the marking of the exams and the students writing the exams in the first place (Smith, 2010).

Objectives

The Problem of Exam Length

Reduction of exam length is particularly pertinent now because of the increasing potential to do harm to students in the name of assessment or accountability. The increased social pressure on institutions to deliver and defend numbers, statistics, and grades coupled with technological enhancements, has created a "tidal wave of targets and accountability" (Broadfoot & Black, 2004, p.23). Perhaps technology can be used in a way to help the university be accountable to society without placing unnecessary burdens on the students or the staff.

According to some researchers, students may consider an excessively long exam (3 hours) to be unfair because only the brightest and fastest students are able to finish in the allotted time (Felder, 2002; Vos, 2000). According to Bouville, "a short test (time wise) tends to penalize more conscientious students while a longer exam may penalize faster students. One can also note that the situation is quite symmetric: some who really understand the material may fail because they are too slow to finish and others may fail because of careless errors. Why then give slower students an edge? Giving students an infinite amount of time would mean that speed is utterly worthless — this is plainly false." (Bouville, 2008, p.3).

Although evidence is predominantly anecdotal, we agree that we need to strike a balance between practicality and validity. We need to explore ways to reduce the time and effort to grade final exams when "there are 400 students to assess, and their results have to be sent to the board of examiners the week following the examination" (Biggs, 1999, p.167). The increase in student enrollments and concurrent reduction of government funding for universities translates to heavier workloads for teaching staff and constrained assessment resources (Scouller, 2000). Even though few educators or administrators would disagree with the benefits of an objective test over a subjective one, the reality is that educators are not given extra credit or time off from research or administrative responsibilities merely because they chose to use a more time-intensive assessment method (Buchanan & Rogers, 1990). Arguably the most common approach to reducing grading effort as class sizes have increased has been the use of multiple-choice exams (Nunnally & Bernstein, 1994). However, many educators believe that multiple choice exams are fundamentally flawed measures of student knowledge and performance (Scouller, 1997) and are inferior to comprehensive exam type questions that require students to consider all aspects of a

problem to generate a thorough analysis and synthesis. While multiple choice questions can be graded electronically or mechanically, comprehensive questions are labour intensive for the educator or marker.

To address this problem, we offer an alternative method of reducing grading effort that avoids the pitfalls common to the use of multiple choice exams. We recommend shortening exam length. A one-third reduction in the length of a conventional exam could, for example, reduce grading effort by approximately one third.

We wanted to shorten our standard 3-hour final exam (which was composed primarily of comprehensive questions) because grading this exam was the source of most complaints of overwork from other faculty. Our research question was how much, if at all, we could shorten our final exam? For most university faculty, this would be a simple question of personal judgment. A professor who, in their own judgment, felt that a 2.5-hour final was good enough would simply shorten their final to this length and that would be it. However, many professors, like us, are also researchers, and they might wish to gather empirical evidence to justify any change in exam length. We wanted to compare student performance on the standard 3.0-hour full-length final exam with that on 5 shortened exams varying in length from 0.5 hours to 3.0 hours (0.5, 1.0, 1.5, 2.0, and 2.5 hours).

We considered that a shortened exam would be acceptable if it met at least two minimal empirical requirements. We suspect that these requirements are universal in applying to all university disciplines and to all course subjects. First, students who do well (or poorly) on the customary-length exam (3.0 hours in our introductory business statistics course) should do equally well (or poorly) on any acceptable shortened exam. Specifically, we expected student performance on an acceptable shortened exam should correlate very highly with that on the full-length exam. Second, mean student performance on any acceptable shortened exam should be roughly equivalent to that on the full-length current exam.

Initially, we considered employing a traditional experimental design to address our research question (either a between-subjects or a within-subjects conventional experimental design). In the next section we describe why we had to reject all conventional experimental designs for examining this issue of exam length. In the section after that, we describe how one can use a new type of true experimental design, called synthetic designs, to address our research question (e.g., Lee and Whalen, 2007). We will show that synthetic designs provide substantial advantages over conventional experimental tests of our research question.

Problems with Traditional Experiments

A multitude of problems plague the use of traditional experimental designs in the field of education. First, running traditional experiments is costly (e.g., Alison et al., 1997). Typically, large numbers of students must be tested, increasing financial costs, and time and effort required by both students and researchers. Even a casual examination of recent articles published in mainstream journals in any empirical field, including education, suggests that traditional randomized experiments demand considerable money, time, and effort. Not only must researchers spend excessive amounts of time conducting a single traditional experiment, but elapsed time between the beginning and end of data collection is often extraordinarily long compared to that required in more laboratory-oriented fields such as experimental psychology.

Second, recent studies of the use of traditional experiments in many fields have complained of inadequate statistical power, precision, effect sizes, and practical significance (e.g., Alison et al., 1997; Kirk, 1996; Wilkinson, 1999). Maxwell and Delaney (2004) have complained that experimental studies typically fail to have sufficient power because sample sizes

are too small for the situation. To increase sample size, however, requires that researchers test more students or subjects. But this simply exacerbates our first problem of excessive costs.

Third, these problems of cost and power are particularly acute in the educational field because of the practical and ethical difficulties entailed in trying to randomly assign students or classes to different experimental treatments (as is required in all conventional experimental designs). For example, random assignment of students to different experimental groups, required by all traditional experimental methods, is often either impractical or ethically unacceptable (e.g., Campbell and Stanley, 1963). Consequently, when trying to optimize performance, teachers and educational researchers often resort to use of general guideline principles, trial and error, or even intuition in lieu of extensive testing of actual students. Because true randomized experiments permit drawing inferences about causes and effects that are critical for improving system performance, it can be difficult to optimize performance without such testing.

Recently, researchers have proposed ways to reduce experimental costs or increase power without increasing the number of subjects. These methods have fallen into two general classes: new methods of statistical analysis and alternative experimental designs. Proposed new methods of statistical analysis include single-degree-of-freedom hypothesis tests (e.g., McClelland, 1997; Maxwell and Delaney, 2004) and statistical modeling such as additive main effects and multiplicative interactions (Gauch, 2006). Alternative forms of experimental design include the unequal allocation of subjects among treatments (McClelland, 1997). But these alternative methodologies are rarely used in educational research.

The synthetic within-subjects designs proposed here fall into this second class (Lee & Whalen, 2007). They are a new form of true experimental design for exploring cause-effect relationships between manipulated independent variables (e.g., features of the system used for grading students or characteristics and types of exams used to assess student performance) and dependent variables (e.g., measures of student performance). We justify synthetic designs here on three grounds: examples drawn from exploring the effects of varying the length of the final exam in a university course showing the advantages gained over use of traditional designs; a comparison with traditional designs showing their differences and advantages on 17 of the 18 criteria often used to compare alternative research techniques; and an assessment showing these designs satisfy all the requirements of true experiments (albeit in a novel way). When these designs can be used, they provide virtually all the advantages and none of the disadvantages of traditional experimental designs.

In brief, synthetic designs have much greater power and relative efficiency, require significantly fewer students or subjects, cost substantially less, and pose fewer threats to internal, external, and statistical conclusion validities (Lee & Whalen, 2007). Moreover, many synthetic experiments can be based on a single empirical data set, such as that obtained from a single class of students, without requiring the empirical testing of additional students or classes of students. Traditional experimental designs fail miserably in this context. Significantly, synthetic experiments can be designed to address new research questions not imagined at the time the empirical data was collected. Their one major shortcoming relative to traditional experimental designs is that they can only be used in situations that satisfy a new assumption – actual equivalence.

Traditional experimental designs are predicated on the assumption that, before application of the treatment, all treatment groups are probabilistically equivalent across all extraneous variables (Gravetter et al., 2006). If this assumption is true, then any differences between treatment groups observed after application of the treatment must be caused by (or due

to) the treatment itself and not by any extraneous variables. In conventional BS designs, the primary technique used to achieve this equivalence is random assignment. Traditional WS designs, however, depend on two techniques for achieving equivalence on extraneous variables: random assignment and using a subject as his or her own control. In essence, traditional WS designs rely on holding extraneous variables constant for establishing equivalence of treatment groups prior to application of the treatment. Randomization assumes a more limited role in establishing probabilistic equivalence in WS designs because it is used primarily for ensuring probabilistic equivalence of groups of subjects receiving the repeated treatments in different orders.

As with traditional designs, we must make a similar assumption about equivalence in synthetic designs. For synthetic designs, however, we assume that our treatment groups are, before application of the treatment itself, equivalent on all extraneous variables. Note that we do not assume probabilistic equivalence but actual equivalence. This is because we rely on our subjects' or students' behavior being identical in every respect in each of the treatment groups. This equivalence is achieved not by random assignment but by the use of the student as his or her own best control. However, unlike traditional WS designs, this control is assumed to be perfect for synthetic designs. This is a much stronger assumption than the probabilistic equivalence assumption made by traditional designs. In synthetic designs, we assume there is absolutely no variation in environmental conditions, subject behavior, or any other extraneous variable (because exactly the same vectors of student behaviors are input into each system).

Happily, there are some issues of interest in educational research that satisfy this assumption. In the context of the present study on exam length, for example, we assume that student answers on all questions on a given shortened exam would be exactly the same as they were for the full-length examination. Synthetic designs replace randomization and its associated assumption of probabilistic equivalence with the assumption of actual equivalence.

Traditional Experimental Tests of Exam Length

Two designs are traditionally used for experimental investigations of issues such as the effect of exam length on student performance: either a conventional Within Subjects (WS) or Between Subjects (BS) experimental design. Our goal in the following sections is to examine the problems associated with designing a conventional BS or WS experiment to test for differences between average student performance on six exams varying in length (.5, 1.0, 1.5, 2.0, 2.5, and 3.0 hours).

Conventional WS design

In a conventional WS design, each student would have to write all six versions of the exam for a given class. There are many problems with this methodology. One is simply the amount of effort required from students (and researchers); each student would have to spend over 10 hours writing all six exams. As well, students would have to answer some of the same questions repeatedly on multiple exams, increasing the likelihood that students would remember more on exams presented later.

More seriously, practical difficulties, ethical complications, and order effects inherent in any use of a WS design to examine the issue of exam length effectively preclude the use of this type of experimental design here. It is hard to imagine that many students in a class would volunteer to write all six exams given: (a) the total length of time and effort required for students to write all six exams and (b) they would still have to write all the exams in their other courses during the same examination period. Even if sufficient volunteers were found, how would

professors handle students writing six different exams in different sequential orders with different time lengths permitted? Furthermore, how would professors cope with having to grade over three times as much as they do currently? Virtually insurmountable ethical dilemmas must inevitably abound in any attempt to arrive at a final grade for each student. If the grade for the course is determined, for example, by the 3.0-hour exam, will the student who writes the exam after writing earlier the other 5 exam versions consider the exam to be a fair reflection of his or her ability given that other students will have written the critical 3.0-hour exam first when they were freshest? Also, how fair will volunteers feel this method of grading to be when non-volunteers will be graded in quite a different way? Even if a few students volunteer, will the university administration or the university research ethics board also agree? Order effects may arise in WS designs if the administration of an earlier exam affects how students perform on an exam version presented later in the series. Student performance on the last of six exams may, for example, be much worse due to fatigue than it would have otherwise been. Because order and exam length effects would be inextricably confounded here and because of the practical and ethical problems associated with this type of design, a traditional WS design must be categorically rejected.

Conventional BS design

If one were to use a BS design instead, then a large pool of students would have to be randomly assigned to the 6 different exam lengths. To achieve the same statistical power as the synthetic experiments (soon to be described) would require a minimum of $6 \times 172 = 1032$ students (the 172 students in the synthetic design generated 6 exam scores each for a total of 1032 scores). But there are several complicating factors that can drive this required sample size much, much higher. For example, as the correlation in a synthetic design between student exam performances on short and long exams is increased, the number of students required in a BS design to achieve the same statistical power also increases beyond the minimum of 1032 (Venter et al., 2002). Given that the average correlation found in this study was on the order of .90, many, many more students would have to be tested using this type of design.

But there are many other serious problems associated with using BS designs to investigate exam length. First, randomization of assignment of students to treatment group, essential for achieving effective use of this design, is ethically problematical. Students and university research ethics boards might rebel at the suggestion of randomly assigning students to receive different exams in the same course. Second, there are substantial practical impediments to convincing such large numbers of students to volunteer to participate in such a study. Third, the use of a BS design in this type of educational study raises the question of whether the unit of analysis should be the individual student or the class. This design would also have very low power. Moreover, the costs and time required to find that many students would be impractical. To match the power achieved by synthetic designs, BS designs must typically test unrealistically large numbers of subjects.

Synthetic Experimental Tests of Exam Length

We introduce a new form of true experimental designs, synthetic designs, which can offer substantial reductions in sample sizes, cost, time and effort expended, increased statistical power, and fewer threats to internal, external, and statistical conclusion validities (e.g., Lee and Whalen, 2007). Those authors compared synthetic designs with conventional experimental designs and found synthetic designs to be markedly superior on 17 of the 18 criteria usually used to compare different experimental techniques. This new design is a variation of within-subjects design in

which each subject serves in only a single treatment condition. Performance scores for all other treatment conditions are derived synthetically without repeated empirical testing of each subject (in a way to be described in the method section). Synthetic designs have been used before, for example, to study the use of facial features in computerized suspect identification systems (Lee et al., 2004a, 2004b). We use this new design to explore the potential for reducing exam length in four university statistics classes (a separate synthetic experiment is conducted on each class) as a way of reducing the dramatic increase in faculty work load due to recent marked increases in class sizes.

Methodology

The effect of exam length on student performance was examined using a synthetic experimental design methodology. Synthetic designs, unlike conventional experimental designs, do not require that an empirical study be designed and then conducted to gather the information required to address the research issues of interest (though this can be done). In fact, old archival data can sometimes be used as the basis for a synthetic experimental design. This is, in fact, what was done here. Regulations at our university require that old final exams be stored for 12 months after they were written. These old exams served as the foundation for the synthetic experiments to be described. Use of a conventional experimental design to address the problem of exam length, if one could find a way to get around the ethical dilemmas, would have required the investment of considerable time, effort, and money and the conduct, sometime in the future, of a conventional experiment. Moreover, it would have taken several years to gather sufficient information to address our research question. Instead, we examined the issue immediately without having to resort to conducting new empirical studies.

Four synthetic experiments, one for each of four classes that had been taught in the previous year, were conducted. Table 1 summarizes characteristics of each of these four separate experiments. The methodology employed was virtually identical in each experiment and is described in the following sections.

The Course

All students attended one of four classes in Introductory Business Statistics, a one-term course. The course, presented in a series of lecture classes over 39 hours during a term of four months, covered the usual introduction to descriptive and inferential statistics. Topics included confidence intervals, hypothesis testing, z-tests, t-tests, F-tests, chi square test, bivariate correlation and regression, test assumptions, and advantages and disadvantages of the various tests taught. Each term, one professor, designated the coordinator, was tasked with designing all aspects of the course including the topics covered and construction of all course assignments, midterm, and final exam for all students enrolled in the course. Other professors were free to teach their own classes in any way they wished and to grade their exams in any way they wished (though the textbook and all readings, assignments, and exams were the same for all classes in a given term).

Classes

Four classes (designated A through D in all tables) in a single term were studied. These four classes were tested from the fall academic term. A separate synthetic experiment was performed on each class.

Students

A total of 172 students took one of the four statistics classes, of whom approximately 40% were male and 60% were female. Students were typically in their second year of a four-year university program of studies. The number of students writing the final exam in each class is reported in table 1.

Teachers

One teacher (designated T1) taught three of the classes while a second teacher (designated T2) taught the fourth class.

Exam Writers

One professor (designated W1) constructed the final exam.

Exam Markers

Two professors (designated M1 and M2) marked the final exam. No constraints were placed on how professors marked each exam question.

Exams

Each student actually wrote only a single final exam and that exam was always a full-length 3.0-hour exam. The final exam (designated E1), a maximum of 3.0 hours in length, was administered at the end of the academic term. Most marks on the final were awarded for solving complex semi-realistic statistical problems.

Five shortened exam versions of the full-length exam were constructed (exam lengths of 2.5, 2.0, 1.5, 1.0, and .5 hours). The same procedure was used to construct each shortened-length exam. As a rough guide in each case, the ratio of exam times (short/full) set the percentage of marks for questions selected from the full-length exam to be included on the newly created shortened exam. Thus, for the 1.5-hour exam, for example, a subset of questions was selected totaling approximately $(1.5/3.0 \times 100 =)$ 50% of the original 100 marks allotted on the full-length exam. The subset of questions on any shortened exam always constituted a subset of all the questions on the full-length exam. The subset was always selected to produce the fairest, best possible exam (and appropriate for the time available) of the shortened length given this constraint. For comparability of exam performances, student marks for each shortened exam were then renormalized to a range of 0 to 100%. Thus, if the total marks on a shortened 1.5-hour exam added up to 48% (of the marks on the original full-length 3.0-hour exam), then each student's shortened exam mark would be multiplied by $100/48$ or 2.083. A student mark of 36 out of a maximum possible 48 on such a 1.5-hour exam would result in a score of 74.99%.

Procedure

Students actually wrote only the 3-hour version of one of the three exams. Prior to commencement of any aspect of the current research project, all 172 student exams had been administered, graded, and stored away. Four synthetic experiments were conducted, one on each class. Synthetic experiments are always conducted in two successive phases: an empirical phase followed by a synthetic phase (Lee & Whalen, 2007).

Empirical Phase

No new data was actually collected for the purposes of this study. Instead, the old exams were removed from storage, and for each student the marks awarded for each part of a question were recorded in an Excel spreadsheet (a separate one for each class). This data constituted four

separate empirical data sets, one for each class. Thus, an empirical data set consisted of the set of n student vectors in a class, each vector composed of the marks awarded to that student on each part of each question on the exam written.

Synthetic Phase

In the second phase, five shortened versions of each full-length 3.00-hour exam were constructed, as described earlier. Student performance scores (in %) on all 6 versions of their final exam (exam lengths of 3.0, 2.5, 2.0, 1.5, 1.0, and .5 hours) were then generated synthetically using Excel, that is, without resorting to further empirical testing of students. An Excel equation computed the grade a student would receive for each version of the 3.0-hour exam actually written. Each equation summed the marks achieved by a student on only those questions that would appear on that particular version of the full 3.0-hour exam. Scores for shortened exams were renormalized to a scale of 0% to 100%. Thus, the equation for the original 3.0-hour exam simply summed the marks awarded for all questions on the student's original exam. This mark was identical to the grade originally awarded officially to each student. The equation for the 2.0-hour exam summed the marks awarded only on the subset of exam questions that students would be presented with if the final exam had been the shortened version rather than the actual 3.0-hour exam. This sum was renormalized to 0-100% (rather than 0-67%).

Generation of these derived, or synthetic, student performance scores is based on the assumption that students would answer the same question on a 2.0-hour exam as they would on a 3.0-hour exam. Given that a comparable amount of time would be available to answer this identical question in both exam situations, this assumption seems not unreasonable. Conversely, there seems little or no reason that can be given for supposing a student to answer the same question much differently on two different length exams. A similar assumption must always be made to justify use of a synthetic design, but this assumption must be shown to be eminently reasonable to justify use of a synthetic design (Lee & Whalen, 2007).

Experimental Design

For each class, a distinct synthetic experiment was conducted with one synthetic factor, or independent variable -- exam length (3.0, 2.5, 2.0, 1.5, 1.0, and .5 hours). To test the hypotheses made earlier on the data for each class, two primary sets of statistical analyses were performed: correlations between full-length exam student performances and that on each shortened exam and average student performance on each exam.

Correlations

Our first criterion for a shortened exam to be considered as an acceptable substitute for the full-length exam was that student performance on the two exams be highly correlated. This hypothesis was tested in each experiment using a priori linear correlations (Pearson r) between student performance on the control exam and that on each of the shorter exams. We decided beforehand that correlations exceed a minimum of $r = .70$ so that at least ($r^2 =$) 50% of the total variation in student performance on the full-length exam could be accounted for or explained by the variation in student performance on the shortened exam. We also hypothesized that the correlation between full-length and shortened versions of the same exam would decrease systematically as the length of the shortened exam decreased.

Average Student Performance

We made a third hypothesis earlier regarding average student performance. The first part of this hypothesis asserts that, for a shortened exam to be considered an acceptable substitute for the full-length exam, average student performance on that exam should not deviate significantly from that on the full-length exam. The second part of this hypothesis asserts that, for a shortened exam to be considered an acceptable substitute for the full-length exam, average student performance on that exam should be statistically equivalent to that on the full-length exam.

Both aspects of this hypothesis involve the a priori (or planned) comparison of a control group (the full-length 3.0-hour exam) with several treatment groups (the five shortened versions of the 3.0-hour exam). Consequently, to test both aspects of this hypothesis, Dunnett's (1955, 1964) test for a priori or planned multiple comparisons with repeated measures data was used with the full 3.0-hour exam serving as the control group and the five shortened exams as the treatment groups (Howell, 2002, p. 372). All Dunnett's tests were conducted as ordinary repeated-measures t-tests but with significance assessed using Dunnett's tables (e.g., Dunnett, 1955, 1964; Howell, 2002). This test is more powerful than any of the other tests that aim at holding the family wise error rate at or below α . Dunnett's tests were used without any preliminary overall F test, as advocated by many statisticians (e.g., Howell, 2002, pp. 372; Kirk, 1995; Ruxton and Beauchamp, 2008; and Wilcox, 1987). Tests were all two-tailed, and the family wise error rate was set at $\alpha = 5\%$. We followed Maxwell's (1980) and Howell's (2009) advice against using a pooled error term based on all the data and instead used "only the data involved in those contrasts to run the contrasts" (Howell, 2009, p.13). The only comparisons of interest in each experiment were between the control group and each of the treatment groups (thus, Dunnett's test is most appropriate for analysis of multiple comparisons). Comparisons between pairs of the five shortened exams were not of interest and so were not tested.

To compare average student performance on a given full-length 3.0-hour exam with that on each shortened version of the same exam, we conducted two complementary sets of statistical analyses using Dunnett's test: difference tests and equivalence tests.

Traditional statistical hypothesis testing, which can be called difference testing, does not permit the testing of an alternative or research hypothesis of equivalence. However, a new form of statistical hypothesis testing, called equivalence testing, does. We follow the lead of Barker et al. (2002) who advocates using both difference testing and equivalence testing to examine the same data.

Difference Testing vs. Equivalence Testing

Traditional statistical hypothesis testing (for which the null hypothesis is no difference), which some have called difference testing, permits the testing of differences between means. We used a simple repeated-measures t-test to compare statistically performance on the full-length exam for a class with that on each shortened version of that exam. The significance of these t-test values were assessed, not with standard t-table values, but with Dunnett's t-table values which are appropriate for use whenever a standard (in our case, average student performance on the full-length exam) is compared with a number of treatments (in this case, with average performance on shortened versions of the full-length exam).

The null hypothesis for each of these tests was the conventional one of insufficient evidence of any difference and the alternative, or research, hypothesis was sufficient evidence of a real or significant difference (hence the term – difference testing). It is generally accepted that the alternative hypothesis in conventional difference testing can never express equality, that is, we can never prove that the mean for one group equals the mean for another group.

In contrast to conventional difference hypothesis testing, equivalence hypothesis testing permits the testing of a null hypothesis of insufficient evidence of practical equivalence and an alternative hypothesis of practical equivalence (e.g., Barker et al., 2002; Ennis & Ennis, 2009; Limentani et al., 2005; Rogers et al., 1993; Schuirmann, 1981; Seaman & Serlin, 1998; Stegner et al., 1996; Westlake, 1976, 1981). For the purposes of this study, we defined practical equivalence as $\Delta = \pm 5\%$. Based on long experience setting final exams in business statistics, all professors teaching this course gave exactly the same estimate. In plain language, all four professors agreed that two different final exams could be considered practically equivalent if average student performance on the two exams did not differ by more than $\pm 5\%$. In the present context, a shortened final exam would be considered for all practical purposes as roughly equivalent to the full-length exam provided that average student performance did not differ by more than $\pm 5\%$.

Again, we used a simple repeated-measures t-test to compare statistically performance on the full-length exam for a class with that on each shortened version of that exam. The significance of these t-test values were assessed with Dunnett's t-table values.

Interpretation of Difference and Equivalence Tests

Conducting both difference tests and equivalence tests permits a more comprehensive statistical analysis than the use of either alone (e.g., Rogers et al., 1993; Barker et al., 2002). When using both difference and equivalence tests to compare average student performance on a full-length exam with that on any shortened version, four possible outcomes are possible: both difference and equivalence tests significant, equivalence test only significant, difference test only significant, and neither tests significant. If both difference and equivalence tests are significant, then we will conclude that, while we have solid evidence that a real difference exists, the difference is so small that it is trivial (given our finding of equivalence) and the two exams are, therefore, for all practical purposes equivalent. If only the equivalence test is significant, then we will conclude that we have true equivalence (at least within the tolerance of our test). Of course, failure to find evidence of a difference using difference testing cannot be interpreted as evidence of equivalence. However, the equivalence test in this case does. If only the difference test is significant, then we will conclude that we have solid evidence of a difference in average student performance between the two exams (note that a failure to find equivalence by the equivalence test does not permit us to conclude here that there is evidence of a real difference). If neither test is significant, then we must defer our decision as we have insufficient evidence of either similarity or equivalence.

Confidence Intervals for Difference and Equivalence Tests

In table 2 we report 95% confidence intervals for difference tests and 90% confidence intervals for equivalence tests.

Results

The results are summarized in table 2. The results of the synthetic experiments for the four statistics classes are discussed in sequence. The discussion for each class is organized into several sections corresponding in the main to the predictions made earlier.

Class A

For this class, student performance on all shortened exams correlated highly with that on the full-length exam (see table 2, $p < .1\%$ for all correlations). With the exception of the 0.5-hour exam, all shortened exams met the additional criterion of exceeding a correlation of .8944. Such high correlations signify that student performance on all shortened exams of 1.0 hours or longer account for at least 80% of the total variation one finds in student performance on the full-length exam ($r^2 = .80$). As predicted, the correlation between shortened and full-length exams decreased systematically as the shortened exam decreased in length (the probability that by chance alone we would find the 5 correlations in the predicted sequence is 3%, $p = 1/2^5$).

Mean student performance on the 2.5-hour shortened exam differed significantly from that on the full-length exam by conventional difference testing (Dunnett's $t_{diff} = -2.93$, $df = 24$, $k = 5$, $p < 5\%$). However, this difference, while significant, is obviously trivial because the equivalence test is also significant (Dunnett's $t_{equiv} = 5.02$, $df = 24$, $k = 5$, $p < .1\%$). The equivalence test results provide strong evidence that student performance on the 2.5-hour exam is equivalent for all practical purposes to that on the full-length exam.

Mean student performance on the 2.0-hour shortened exam was significantly equivalent to that on the full-length exam (Dunnett's $t_{equiv} = 5.83$, $df = 24$, $k = 5$, $p < .1\%$) while difference testing showed no evidence of any difference in mean student performance (Dunnett's $t_{diff} = -0.66$, $df = 24$, $k = 5$, ns). Clearly, student performance on the 2.0-hour shortened exam is statistically equivalent to that on the full-length exam.

Both difference and equivalence tests for the 0.5-, 1.0- and 1.5-hour shortened exams were non-significant which must be interpreted as insufficient evidence of a conclusion of either a true difference or equivalence between each of these three shortened exams and the full-length exam (Dunnett's $t_{diff} = 1.22$, 0.47 , and 0.90 , $df = 22$, $k = 5$, all ns; Dunnett's $t_{equiv} = -0.12$, -1.51 , and -1.88 , $df = 22$, $k = 5$, all ns). Thus, we cannot arrive at any definitive conclusions on the relationship between student performance on these three shortened exams and that on the full-length exam.

For this class, shortened exams of 2.0 hours or longer meet both of our primary criteria for an acceptable replacement for the full-length 3.0-hour exam: a very high correlation and equivalence.

Class B

For this class, student performance on all shortened exams correlated highly with that on the full-length exam (see table 2, $p < .1\%$ for all correlations). All shortened exams longer than 1.0 hour met the additional criterion of exceeding a correlation of .894. Thus, the 1.5-, 2.0-, and 2.5-hour exams account for at least 80% of the total variation one finds in student performance on the full-length exam ($r^2 = .80$). As predicted, the correlation between shortened and full-length exams decreased systematically as the shortened exam decreased in length (the probability that by chance alone we would find the 5 correlations in the predicted sequence is 3%, $p = 1/2^5$).

Mean student performance on the 2.5-hour shortened exam differed significantly from that on the full-length exam by conventional difference testing (Dunnett's $t_{diff} = -6.19$, $df = 62$, $k = 5$, $p < .1\%$). However, this difference is obviously trivial because the equivalence test is also significant (Dunnett's $t_{equiv} = 9.47$, $df = 62$, $k = 5$, $p < .1\%$). The equivalence test results provide strong evidence that student performance on the 2.5-hour exam is equivalent for all practical purposes to that on the full-length exam.

Mean student performances on the 1.0-, 1.5, and 2.0-hour exams were significantly equivalent to that on the full-length exam (Dunnett's $t_{equiv} = 2.81$, -2.66 , and 9.35 , $df = 62$, $k = 5$,

p 's < .1%) while difference testing showed no evidence of any difference between exams in mean student performance (Dunnett's $t_{\text{diff}} = -0.15, 2.25, \text{ and } -1.06, df = 62, k = 5, \text{ all ns}$). Clearly, on this criterion, student performance on the 1.0-, 1.5-, and 2.0-hour shortened exams is statistically equivalent to that on the full-length exam.

Both difference and equivalence tests for the 0.5-hour exam were non-significant which must be interpreted as insufficient evidence of a conclusion of either a true difference or equivalence between this shortened exam and the full-length exam (Dunnett's $t_{\text{diff}} = 1.22, df = 24, k = 5, \text{ ns}$; Dunnett's $t_{\text{equiv}} = -0.12, df = 24, k = 5, \text{ ns}$). Thus, we cannot arrive at any definitive conclusions on the relationship between student performance on this shortened exam and that on the full-length exam.

For this class, shortened exams of 1.5 hours or longer meet both of our primary criteria for an acceptable replacement for the full-length 3.0-hour exam: a very high correlation and equivalence.

Class C

For this class, student performance on all shortened exams correlated highly with that on the full-length exam (see table 2, $p < .1\%$ for all correlations). All shortened exams longer than 0.5 hours met the additional criterion of exceeding a correlation of .894. Thus, the 1.0-, 1.5-, 2.0-, and 2.5-hour exams account for at least 80% of the total variation one finds in student performance on the full-length exam ($r^2 = .80$). As predicted, the correlation between shortened and full-length exams decreased systematically as the shortened exam decreased in length (the probability that by chance alone we would find the 5 correlations in the predicted sequence is 3%, $p = 1/2^5$).

Mean student performance on the 2.5-hour shortened exam differed significantly from that on the full-length exam by conventional difference testing (Dunnett's $t_{\text{diff}} = -5.88, df = 60, k = 5, p < .1\%$). However, this difference is obviously trivial because the equivalence test is also significant (Dunnett's $t_{\text{equiv}} = 7.21, df = 60, k = 5, p < .1\%$). The equivalence test results provide strong evidence that student performance on the 2.5-hour exam is equivalent for all practical purposes to that on the full-length exam.

Mean student performances on the 1.0-, 1.5-, and 2.0-hour exams were significantly equivalent to that on the full-length exam (Dunnett's $t_{\text{equiv}} = 2.41, -2.61, \text{ and } 9.42, df = 60, k = 5, p$'s < .1%) while difference testing showed no evidence of any difference between exams in mean student performance (Dunnett's $t_{\text{diff}} = 0.46, 1.74, \text{ and } 1.00, df = 60, k = 5, \text{ all ns}$). Clearly, on this criterion, student performance on the 1.0-, 1.5-, and 2.0-hour shortened exams is statistically equivalent to that on the full-length exam.

For the 0.5-hour exam, only the difference test was significant (Dunnett's $t_{\text{diff}} = -4.88, df = 60, k = 5, p < .1\%$; Dunnett's $t_{\text{equiv}} = 2.20, df = 60, k = 5, \text{ ns}$) which must be interpreted as sufficient evidence of a conclusion of a true difference coupled with no evidence of equivalence between this shortened exam and the full-length exam. Thus, we can definitively reject the 0.5-hour exam for failure to meet our requirements for an acceptable shortened exam.

For this class, shortened exams of 1.0 hours or longer meet both of our primary criteria for an acceptable replacement for the full-length 3.0-hour exam: a very high correlation and equivalence.

Class D

For this class, student performance on all shortened exams correlated highly with that on the full-length exam (see table 2, $p < .1\%$ for all correlations). With the exception of the .5-hour exam, all shortened exams met the additional criterion of exceeding a correlation of .894. Such high correlations strongly suggest that student performance on all shortened exams of 1.5 hours or longer account for at least 80% of the total variation one finds in student performance on the full-length exam ($r^2 = .80$). As predicted, the correlation between shortened and full-length exams decreased systematically as the shortened exam decreased in length (the probability that by chance alone we would find the 5 correlations in the predicted sequence is 3%, $p = 1/2^5$).

Mean student performance on the 2.5-hour shortened exam differed significantly from that on the full-length exam by conventional difference testing (Dunnett's $t_{diff} = -3.63$, $df = 22$, $k = 5$, $p < .1\%$). However, this difference, while significant, is obviously trivial because the equivalence test is also significant (Dunnett's $t_{equiv} = 5.32$, $df = 22$, $k = 5$, $p < .1\%$). The equivalence test results provide strong evidence that student performance on the 2.5-hour exam is equivalent for all practical purposes to that on the full-length exam.

Mean student performance on the 2.0-hour shortened exam was significantly equivalent to that on the full-length exam (Dunnett's $t_{equiv} = -5.62$, $df = 22$, $k = 5$, $p < .1\%$) while difference testing showed no evidence of any difference in mean student performance (Dunnett's $t_{diff} = -0.80$, $df = 22$, $k = 5$, ns). Clearly, student performance on the 2.0-hour shortened exam is statistically equivalent to that on the full-length exam.

For the 1.0- and 1.5-hour exams, only the difference test was significant (Dunnett's $t_{diff} = 4.50$ and 6.66 , $df = 22$, $k = 5$, p 's $< .1\%$; Dunnett's $t_{equiv} = 2.01$ and 2.21 , $df = 22$, $k = 5$, both ns) which must be interpreted as sufficient evidence of a conclusion of a true difference coupled with no evidence of equivalence between this shortened exam and the full-length exam. Thus, we can definitively reject the 1.0- and 1.5-hour exams for failure to meet our requirements for an acceptable shortened exam.

Both difference and equivalence tests for the 0.5-hour exam were non-significant which must be interpreted as insufficient evidence of a conclusion of either a true difference or equivalence between this shortened exam and the full-length exam (Dunnett's $t_{diff} = 2.28$, $df = 22$, $k = 5$, ns; Dunnett's $t_{equiv} = 0.53$, $df = 22$, $k = 5$, ns). Thus, we cannot arrive at any definitive conclusions on the relationship between student performance on this shortened exam and that on the full-length exam.

For this class, shortened exams of 2.0 hours or longer meet both of our primary criteria for an acceptable replacement for the full-length 3.0-hour exam: a very high correlation and equivalence.

Discussion

Our primary objective was to explore the potential for reducing faculty and student workload by shortening the length of the final examination in our introductory statistics course. We expected any shortened substitute for the current full-length 3.0-hour exam would have to meet or exceed two criteria: (1) the deviation in average student grades between a given shortened exam and the full-length exam would not exceed $\pm 5\%$ and (2) student grades on a given shortened exam would correlate more than .894 with that on the full-length exam. [Informally, we also ensured that (3) a given shortened version of a full-length exam would be judged by teachers of the course as sufficiently content valid and (4) the reliability of a shortened exam, as measured by Cronbach's coefficient alpha, would exceed .70.]

In four separate synthetic experiments, both the 2.5-hour and the 2.0-hour shortened exam versions met our criteria which we expected an acceptable replacement for the original full-length exam. In contrast, the .5-hour shortened exam failed to satisfy the criteria. Support for the use of both the 1.0 and 1.5-hour exams as replacements was equivocal. In some of the four experiments, both criteria were met by the 1.5-hour exam (classes B and C) whereas in the other two experiments the criteria were not met (classes A and D). The empirical and synthetic evidence suggests that the current 3.0-hour exam could be shortened to at least 2.0 hours (and possibly even to 1.5 hours), resulting in a one-third (to one-half) reduction in effort expended grading the final exam for the course.

The four different classes did not empirically support a change to the same minimum-length exam (class A \geq 2.0 hours, B \geq 1.5 hours, C \geq 1.0 hours, and D \geq 2.0 hours). The apparent contradictions are easily understood by noting first that classes A and D both had very small class sizes ($n = 25$ and 23 , respectively). It takes larger sample sizes (such as the n 's = 63 and 61 for classes B and C) to demonstrate statistical equivalence for shorter length exams. It is likely that, if their class sizes had been larger, classes A and D would probably have resulted in providing evidence of an acceptable length shortened exam of similar value to the two larger classes (B and C).

Our second objective was to develop a procedure anyone could follow to conduct a synthetic experiment for their own courses. Readers may well question whether the results on shortening the final exam for our course in business statistics would apply to their own courses. Even those teaching business statistics at another university might well question whether our results are at all relevant to the construction of examinations for their own courses. Other statistics professors may emphasize different topics, construct quite different examinations, employ different teaching styles, and teach altogether different students. For courses in other subjects and disciplines, the applicability of our results to such courses is likely to be even more questionable. We agree. Generalization of our results to other professors, students, subjects, and courses will, we believe, be highly variable and idiosyncratic. In some cases, the results will be most germane, but in others we suspect that our results will be completely inapplicable. We argue, however, that this is an empirical question. We argue that any instructor questioning whether or not their own examinations can be shortened should analyze their own data to answer this question. Given the ease with which a synthetic experiment can be conducted and the marked advantages (relative to other experimental, quasi-experimental, or non-experimental designs) of such a design, there seems little reason why other professors could not empirically address the issue of exam length for their own courses.

In table 3, we lay out a brief description of the steps we recommend instructors follow to address the question of faculty grading effort and exam length in their own courses. The primary requirement is a set of previously administered and marked exams for the target course. Faculty with an understanding of basic statistics (correlation and ANOVA) and a statistical software package (such as SPSS, SAS, or even Excel) can easily analyze their own exam data with little time and effort required (we estimate somewhere between 5 and 10 hours for one class of around 75 students). We recommend others consult a trained statistician.

Another objective of this paper was to introduce the use of synthetic experimental designs as an alternative to traditional experimental designs for use in some situations. The term "synthetic" reflects the ephemeral nature of the experimental conditions from the subjects' perspective. As a variant of the traditional WS or repeated-measures design, a synthetic design is a true experiment in which subjects are measured empirically in only a single experimental

condition, but these observations are applied synthetically to every treatment condition. In Lee and Whalen (2007), we showed that this new design meets all the criteria normally expected of any true experimental method.

That synthetic designs are not simply a trivial variation of traditional experimental designs should be apparent (a) by noting that in many real life situations traditional experimental designs are sometimes both impractical and ethically questionable whereas synthetic designs provide a very inexpensive, timesaving, ethically problem-free alternative, (b) by considering the many advantages and few disadvantages compared with traditional experimental designs (as shown in tables 1-3 of Lee and Whalen, 2007). The differences between traditional and synthetic designs are greater than those among the three currently recognized experimental designs (BS, MS, and WS). Moreover, on all but 1 of the 18 comparison criteria cited in the Lee and Whalen (2007) tables, synthetic designs are at least equal to and often markedly superior to traditional experimental designs. Advantages of this design over traditional designs include substantial reductions in sample sizes required, costs, time and effort expended, increased statistical power, and fewer threats to validity (internal, external, and statistical conclusion). Moreover, these designs are sometimes applicable in situations in which all traditional designs are unwise or impractical. In addition, the same subject data can be used to conduct more than one synthetic experiment. The value of a synthetic design in addressing multiple experimental questions using a single empirical data set should not be underestimated. This design represents a radical departure from traditional designs, which require a different set of data to address new experimental questions.

As true experiments, synthetic designs must follow the principles of good experimental methods. For example, questions must be posed a priori. If one looks at the results of a prior experiment to design a second synthetic experiment that is more likely to show a desired effect, then one is taking advantage of a post hoc analysis, and one is, in effect, data snooping. To believe the validity of an effect in that case, an independent cross-validation is required. As much care must be exercised in the design, conduct, analysis, and interpretation of synthetic designs as for traditional designs.

Admittedly, there is a serious limitation of synthetic designs. The primary limitation, however, is the extent to which this design can be applied. The crucial requirement for use of a synthetic design is independence of subjects' behaviour from experimental condition. This requirement is unusual in educational and behavioural research where we are asking questions about people's behaviour. Nevertheless, when this new form of true experimental design can be used, it offers tremendous advantages over traditional experimental approaches.

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Table 1
Description of Classes, Final Exams, Teachers, Markers, and Students¹

Characteristics of Each Class	Class			
	A	B	C	D
Exam	E1	E1	E1	E1
Exam writer	W1	W1	W1	W1
Marker	M1	M1	M1	M2
Teacher	T1	T1	T1	T2
Students	25	63	61	23

Table 2

Traditional Difference, Equivalence, and Correlational Test Results Comparing Student Performance on the 3.0-hour Exam with that on All Shortened Versions of the Same Exam : Classes A to D

s	Exam	Correlation Testing ¹		Student Performance (in %) ²				Difference Testing ($\alpha=5\%$) ^{3,4}				Equivalence Test		
		r	p	M	SD	Diff(short-3.0)		t_{diff}	p	95%CI		Δ	t_{equiv}	p
						M	SE			LCL	UCL			
	3.0			64.82	23.82									
5)	2.5	.995	.001	62.98	25.72	-1.84	.63	-2.93	<5%	-1.14	-3.54	$\pm 5\%$	5.02	<.1%
	2.0	.989	.001	64.31	25.24	-.51	.77	-.66		-2.59	1.57	$\pm 5\%$	5.83	<.1%
	1.5	.951	.001	66.44	27.85	1.62	1.80	.90		-3.24	6.48	$\pm 5\%$	-1.88	
	1.0	.916	.001	66.00	30.12	1.18	2.53	.47		-5.65	8.01	$\pm 5\%$	-1.51	
	0.5	.748	.001	69.38	27.63	4.56	3.72	1.22		-5.48	14.60	$\pm 5\%$	-.12	
	3.0			71.21	22.40									
3)	2.5	.995	.001	69.25	23.39	-1.97	.32	-6.19	<.1%	-2.80	-1.14	$\pm 5\%$	9.47	<.1%
	2.0	.988	.001	70.70	23.81	-.51	.48	-1.06		-1.75	0.73	$\pm 5\%$	9.35	<.1%
	1.5	.936	.001	73.51	22.65	2.29	1.02	2.25		-0.34	4.92	$\pm 5\%$	-2.66	<5%
	1.0	.884	.001	70.96	28.09	-.25	1.69	-.15		-4.61	4.11	$\pm 5\%$	2.81	<5%
	0.5	.830	.001	76.59	30.99	5.37	2.22	2.42		-0.36	11.10	$\pm 5\%$.17	
	3.0			67.43	23.06									
1)	2.5	.995	.001	65.16	24.95	-2.26	.38	-5.88	<.1%	-3.24	-1.28	$\pm 5\%$	7.21	<.1%
	2.0	.990	.001	67.90	24.66	.48	.48	1.00		-0.76	1.72	$\pm 5\%$	-9.42	<.1%
	1.5	.950	.001	69.43	27.27	2.00	1.15	1.74		-0.97	4.97	$\pm 5\%$	-2.61	<5%
	1.0	.923	.001	68.23	31.55	.80	1.74	.46		-3.69	5.29	$\pm 5\%$	-2.41	<5%
	0.5	.874	.001	76.54	29.47	9.11	1.87	4.88	<.1%	4.29	13.93	$\pm 5\%$	2.20	
	3.0			77.46	14.47									
3)	2.5	.986	.001	75.44	15.48	-2.02	.56	-3.63	<.1%	-3.54	-0.50	$\pm 5\%$	5.32	<.1%
	2.0	.969	.001	78.08	15.21	.62	.78	.80		-1.50	2.74	$\pm 5\%$	-5.62	<.1%
	1.5	.936	.001	84.96	15.41	7.50	1.13	6.66	<.1%	4.43	10.57	$\pm 5\%$	2.21	
	1.0	.809	.001	86.51	16.27	9.05	2.01	4.50	<.1%	3.58	14.52	$\pm 5\%$	2.01	
	0.5	.646	.001	83.97	17.46	6.51	2.86	2.28		-1.27	14.29	$\pm 5\%$.53	

on r correlations (all significant at $\alpha = 5\%$) between student performance on the full 3.0-hour exam and that on each shortened version of the same exam (2. student performance and standard deviations for each exam version (in %) and pairwise mean differences between the 3.0-hour exam and each shortened exam; 3. difference testing with conventional paired-samples t -test results reported but significance assessed using Dunnett's (1955, 1964) tabled t values (2.70, 2.58, 2.58 %; 2-sided; and $k = 6$ groups) which are appropriate for comparing each shortened exam with a control (the 3.0-hour exam). Statistically significant difference testing comprised two one-sided paired-samples t -tests, but setting $\mu_1 =$ the equivalence criterion of $\Delta = \pm 5\%$ and with significance assessed using $D = 2.28, 2.28,$ and 2.38 for classes A to D; $\alpha = 5\%$ for each one-sided test; and $k = 6$ groups). Only the larger of the two t -tests is reported (which also has the larger the difference in paired-sample means between each shortened exam and the 3.0-hour exam were computed using Dunnett's t values. The two groups are

Table 3
Recommended Procedure to Follow to Address the Question of Whether
Grading Effort Can Be Reduced in Your Own Course by Reducing Exam Length

Step	Procedure	Task time req'd (hrs) ¹
1	To start, you must have a set of recently completed exams for the course in question.	0
2	For each student's original full-length exam, type in the marks awarded on each part of each question on the full-length examination.	1-2
3	Construct a shortened exam by selecting the subset of question parts from the full-length exam that best reflect the characteristics of a content valid shortened exam of the desired length.	.5
4	For both exams construct an algorithm for use in Excel that adds up the marks awarded to each student on the given exam and prints out that final mark.	.5
5	Using Pearson <i>r</i> (in Excel), correlate student performance on the two exams. Assess the significance of the correlation using appropriate statistical tables.	.25
6	For both exams, compute the mean grade awarded on each exam in Excel.	.25
7	In Excel, use an a priori two-tailed repeated-measures t-test to test whether there is any evidence to suggest that the average grade on the shortened exam differs significantly from that for the full-length exam. If several shortened exams are to be compared with a full-length exam, then a priori Dunnett's tests are appropriate.	.5
8	Carefully assess the content validity of the shortened exam.	.5

1 Estimated times (in hours) to complete each step are based on the assumption that examinations are available for a single class with 75 students having written a full-length exam with 20-30 question parts. Courses with differing characteristics would result in corresponding changes in the estimated time to complete each step. These estimates are based on the time required to complete each step in the four classes reported in the present study.

Organizational Behaviour - Comportment Organisationnel

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TOTAL PARTICIPATION IN WORKER CO-OPERATIVES: THEORY, MEASURES AND IMPACTS

The paper contributes to the discourse on the impact of employee participation in organizations. We describe a management tool grounded in the cognitive theory of Total participation used to measure the degree of participation and its effects, and apply it to evaluate the extent of adherence to the principles and values in worker co-operatives.

Introduction

Co-operative firm's essential features are that ownership is defined by user-transactions with the firm (employment, consumer, or other), rather than capital shares, and voting rights are divided equally among members (Jones & Kalmi, forthcoming). In addition, worker co-operatives form as workplaces based on the strong values of equity, reciprocity, and liberty (Zamagni & Zamagni 2010, p.30). As such, worker co-operatives form special cases of participatory organizations. It is, therefore, important to use an appropriate framework to evaluate co-operative effectiveness, since the literature inappropriately assesses this type of organization by the same efficiency standards as the profit-maximizing enterprise (Zamagni & Zamagni, 2010). It is also important to provide co-operative managers with tools fit for their values-based organizations as one of the ways to strengthen the social functions of co-operatives endangered by the adoption of management practices designed for investor-owned enterprises.

This paper draws on two streams of literature-one, on participation and evidence that ownership and control by employees result in increased productivity, individual motivation, and organizational efficiency, and two, literature on co-operative firms and an increased interest in co-operatives as ethical businesses. Among others, Zamagni & Zamagni (2010) point out the need for effective communication and deliberation in co-operatives in light of their democratic character, as well as the importance of trust

in soliciting ‘social exchange’ rather than incentive-based ‘market exchange’ in co-operatives. We therefore conjecture that the theory of participation based solely on the concept of ownership, as is standard in economics, is not sufficient to capture the level of participation in co-operative firms, and we make a case for the application of the Total participation approach (Prokopowicz, Stocki & Zmuda, 2008) as an underlying concept in measuring co-operatives’ organizational effectiveness.

The paper is organized as follows: In Section Two we discuss the literature in economics and management dealing with employee participation in organizations, and place co-operatives within this framework. Section Three outlines measures and indicators of performance for co-operative organizations, while Section Four describes the cognitive theory of Total participation as a framework fitting co-operative firms, and the Co-op Index tool based in part on this theory. Section Five describes an exemplary application of the Co-op Index in organisational diagnosis, and Section Six concludes.

Employee Participation

The literature on employee participation is vast and varied. The different treatments of participation depend on the field of research, the type of participation scheme(s), and the outcomes under study. In a detailed account of this literature, Heller et al. (1998) assert the reasons for support of participation in organizations to range from humanistic (personal growth and satisfaction of employees), to power-sharing (redistribution of social power), and organizational efficiency (predominant concern in the economics and business literature). The authors categorize the main dimensions of participation to be ownership, degree of control, range of issues, and organizational level of employee influence (table 1.3. p. 19). In all four categories, worker co-operatives are placed at the extreme: worker-members are full owners; they make decisions on all issues from compensation and investments to management selection; the degree of control is complete self-management; and they function at all levels, from individual, through group and plant, to company level. In general, worker co-operatives hold a place in the literature as the special case of full participation. We therefore approach our brief review of the literature on participation highlighting this application.

As a management strategy, many firms have attempted to transform their workplaces to “empower” the employees, give them more autonomy, invest in training, provide job security, etc. in an effort to improve organizational efficiency and, thereby, firm competitiveness (Heller et al., p 12). For co-operative firms, autonomy, education and training, job security, broad job descriptions and wide responsibilities, listed by Heller et al. as the necessary ingredients for participatory workplaces, are all rooted in the co-operative principles and values, and therefore form an integral part of the co-operative organization, by definition.

In the economics of participation, the focus has been on firm’s ownership and control structures. Ben-Ner & Jones (1995) set the stage for treatment of employee participation in (neoclassical) economic theory. Under the premise that ownership implies the right to control, and the return rights, they develop a typology of firms according to different allocations of those two rights. Within this framework, control of the firm implies decision-making and determination of objectives of the organization, as well as the position of individuals within it, while the rights to returns include financial and physical gains (wages, profits, output quality and price, working conditions and the like). They develop a chart including four levels of return rights, and four degrees of control rights, starting from no control and no return rights by employees, to the dominant control and majority return rights by employees. As is often the case in similar treatments of the distribution of employee influence in organizations, on the one end of the spectrum stands the “conventional” firm, and on the other extreme lies the co-operative firm.

Generally speaking, ownership of capital shares does not necessarily produce control rights in organizations (see Heller et al., 1998, p33). When there are some control rights, the rights to return need not be granted, and vice-versa. A number of authors point to the evidence that a mix of two types of rights (or, multiple participation schemes) is the most effective in terms of the impact of participation on the measured outcomes in organizations¹ (Ben-Ner & Jones, 1995; Heller et al., 1998).

Ben-Ner & Jones (1995) state that employee participation affects productivity in organizations *via* individual motivation, and *via* structural variables. Authors postulate that return rights need not produce increased motivation and productivity if there is a free rider problem, but the overall impact is small in either direction. Return rights on their own may have conflicting effects on the overall organization. Looking at control rights in the absence of rights to returns, authors highlight the importance of the degree of control, as well as the issues over which employees exercise control in an organization. Overall, increased control (and, therefore, autonomy) will likely have a positive effect on organizational productivity, if participation is meaningful and individually rewarding, i.e. the benefit of participation to an individual employee is greater than its cost. The authors also suggest that increased control rights imply increased access to information and strategic decision-making for employees. In the absence of other incentives (return rights), increased degree of control by employees may negatively affect overall organization's performance. Therefore, they conclude that a combination of full rights in control and returns will produce the most impact on both the motivational aspects (individual level) and overall effectiveness (organizational level). In the interest of accuracy in the assessment of its impact, studies of participation need to include both types of ownership rights (control and returns), and they need to investigate both the psychological and economic variables (Ben-Ner & Jones, 1995).

While in economics the focus is on the ownership aspect of organizations, organizational psychology recognizes that, for employee ownership to exert influence on group and individual outcomes, formal ownership must lead to psychological ownership, and this then leads to behavioral effects (Pierce et al. 1991). Prokopowicz et al. (2008) and Zmuda et al. (2008) go further, to develop a framework of "total" participation which includes the (learning and developing) individual, the organization, and the wider environment in which the organization operates.

The Total participation approach is particularly interesting for co-operatives from the perspective of measures of firm performance and effectiveness. The term effectiveness (see Prokopowicz et al. 2008, and Richard et al. 2009) indicates the approach to organizations with multiple stakeholders in mind and with a long term perspective. This kind of approach was first proposed by Erdal (1999) in his study of three Italian towns, each with different degree of "cooperativeness". These studies were further supported by epidemiological data from societies of different level of egalitarianism (Wilkinson & Pickett, 2009). Organization's effectiveness, thus, includes its performance from the point of view of immediate stakeholders, capturing its financial performance, market performance, and shareholder return. Effectiveness also includes the impact on wider stakeholders, both inside and outside the organization (see Richard et al., 2009, p3) both from short and long term perspective; a concept which calls for both "objective" and "perceptual" measures, as well as subjective opinions of the insiders (Prokopowicz et al., 2008). While economics literature discusses efficiency and productivity (i.e., organization-level outcomes), and business textbooks treat participation as a human resource management issue (e.g. Armstrong, 2008; Kaplan & Norton, 2004), the total participation approach recognizes the multiple levels of organization's effectiveness, namely its effect on an individual and his/her growth, effect on the

¹ In the economics literature, the measured outcome is typically productivity. If productivity increases, firm's earnings are positively affected as well. While it would be desirable to make the connection between various participatory schemes and firm's profitability, this is difficult as participation is also costly, potentially reducing the rate of profit. See a discussion in Ben-Ner and Jones 1995, for example (p.549).

organizational goals such as viability, and effect on external stakeholders who may or may not take part in the decision-making process.

These elements of organizational impact have been present in the literature on co-operative firms, particularly in the context of the co-operative principles and values, identifying the co-operative ‘difference’, and discussions about the role of co-operative firms in communities. It is well understood in the literature that co-operatives have their social purpose entwined with their economic goals (see Birchal, 2005, for example). Defining that connection, and linking it to organizational success, has been a challenge. The fact that co-operatives belong to many subcategories² did not help focus on what is specific to co-operatives and how they can best take advantage of their distinctiveness. Rather, the literature on co-operatives is dispersed across many fields of research, and among numerous categories of organizations, thereby impacting the disjoint approach to policies affecting the co-operative sector.

In our view, the key difference for co-operatives, besides their purpose, lies in the internationally recognized, and widely accepted co-operative principles and values (ICA 1995), which form the ethical underpinning of co-operative businesses. It is therefore critical that the performance and effectiveness of co-operative organizations be measured against those principles and values.

Co-operatives, Performance and Indicators

As stated, co-operatives are guided by the principles and values, most recently defined by the ICA 1995 Statement of co-operative identity. In case of worker co-operatives, the list of seven ICA principles can be expanded to include participatory management and the integral, but subordinate role of capital, among others (e.g., Mondragon’s MCC operates on ten principles of co-operation).

The literature on the performance of worker co-operatives has often addressed economic measures, namely efficiency and productivity (Craig and Pencavel, 1995; Bonin, Jones & Putterman, 1993; Bartlett et al., 1992; and others). The focus has often been on the relative scarcity of the co-operative form of organization, and conjectures in the mainstream (neoclassical) economic literature that this must be, at least in part, attributed to their relative inefficiency³ (Ben- Ner, 1984; Hansmann, 1996). The focus in economics remains, therefore, on the causes of co-operative firm’s inefficiency, and on empirical measures of their productivity and efficiency relative to investor owned firms. Potential problems for co-operatives, recognized in economics and business literature, are the agency and free riding problems, lack of financing when resorting to member-finance and debt finance, inefficiency due to the lack of an “objective” market measure of firm value in the absence of publicly held stock, and so on⁴. Numerous empirical studies were developed over the years to look for evidence in support of the theoretical claims made in 1960s. Among the empirical studies examining the relative efficiency of co-operatives are Craig and Pencavel (1993) who look at the plywood industry in the USA, where co-

² Co-ops are democratic organizations; they can be non-profit; they belong to the social economy (the “third” sector) because they have social goals; they are often a part of community economic development programs; they are self-managed; they create jobs; they are often small businesses, etc.

³ “Radical” writers have attributed the scarcity of co-operatives in market economies to the lack of support due to ideological bias, and to the hostile institutional environment for the development and preservation of the co-operative firm (Doucouliagos, 1990).

⁴ See Dow (2003) for an exhaustive account of this literature.

operatives and investor-owned firms (IOF) co-existed in a competitive industry. They conclude that the evidence does not support the co-op inefficiency hypothesis. This conclusion is mirrored by Parliament et al. 1990 for dairy co-operatives, Bartlett et al. (1992) for Italian construction co-operatives, and other studies. Bartlett et al. find that co-operatives are more efficient than the IOFs, and produce a healthy industrial relations⁵ environment. Parliament et al. compare co-ops and IOFs on the financial indicators, to find that there is either no marked difference between the two types of dairy producers, or that co-operatives perform better than the investor-owned competitors.

While there is some evidence to the contrary (Porter & Scully, 1987, for example), empirical literature mostly does not support theoretical predictions of inefficiency, employment instability, and non-viability of co-operatives, to name a few potential problems indicated in theory (see Jones & Kalmi, 2008, for a discussion). Co-operative sector has mitigated some of those problems, such as under-capitalization, by the institutional design, but many questions about their relatively scarce occurrence remain. Plywood co-operatives in the US have disappeared in the decades since Craig & Pencavel's study. While inefficiency was not the reason for it, according to the results of their research, there are clearly other issues facing co-operatives and their environment that need to be addressed.

Parliament et al. (1990) acknowledge that additional measures of performance (besides the financial indicators) are required for co-operatives in order to capture their social functions and non-market activities. As a result of their finding that co-ops outperform the IOFs on a number of financial indicators, they pose an interesting question - is this result actually good for the co-operative sector? Could this be a sign that co-operatives move closer to the investor owned firm behavior in order to meet the financial goals set by the competition?

To address the question of tradeoffs between the financial and social function of co-operatives, Schwab (2005) developed a 'profitability range' framework of financial reporting to ensure co-operative success, in terms of both the financial and social returns. He argues that profitability is an imperative for co-operatives, as a matter of survival⁶. To fulfill their social mission, co-ops must be financially sound, so profit is a constraint for co-operative firms. However, Schwab advocates the use of a profitability range ("La fourchette de rentabilite") as a guide in decision-making. According to Schwab's approach, co-operatives would operate on a rate of return between the lower bound, which ensures financially sound operations, and the upper bound, which ensures that the co-op satisfies its social mission (i.e., it is not making too much profit).

This type of debate leads us to our questions-how can co-operatives maintain their values-based identity, and compete in the market economy dominated by the investor-owned firms? How can they set their own performance standards to judge their success? Besides the obvious survival and viability indicators, possibly based on Schwab's rate of return measures, we believe that co-operatives need tools to tie their strategy and measures of performance to the co-operative principles and values. Stocki et al. Total participation framework⁷, we argue, lends itself to such a function.

⁵ This type of outcome is also supported by the Erdal (2000) study in two Italian communities, with and without a large co-operative presence. According to Erdal, presence of a large co-operative sector translates into positive externalities and social outcomes such as less crime, better education, better health, and higher social participation.

⁶ Profit is a means to the social goal, rather than a goal in itself, as is the case in IOFs.

⁷ The Total participation theory is described in Prokopowicz et.al 2008.

Worker Co-operatives and Total Participation

Worker co-operatives⁸ form a special case when it comes to participation, given their mandate of job provision and decent employment, and their participative nature. Typically, member participation in decision-making is the highest in worker co-ops, because the stakes for employees are also very high. This type of a co-operative fits the descriptions in the employee-participation literature, outlined above. While other types of co-ops may include various degrees of employee participation in decision-making (multiple-stakeholder co-ops, for example), this is not common, and it belongs to a less obvious, case-by-case classification⁹.

Stocki and his colleagues have developed Open Index, a tool to measure participation in organizations (Stocki, 2008) based on the cognitive theory of Total participation, described in Prokopowicz et al., (2008), and Zmuda et al. (2008). In a nutshell, the total participation idea presumes that individuals decide to participate in the life of an organization by their own will, and that they act for a common goal. This approach comes together with the supply-side description of the *raison d'être* of co-operatives (Zamagni & Zamagni, 2010, p. 28) as organizations formed by individuals who value economic freedom. Labour 'input' is seen as an opportunity for self-realization of individuals, and not just a factor of production, or 'labour-as-action' of co-operative members, rather than 'labour-as-toil' view of the standard economic theory. Total participation then describes workers who are actively engaged in the processes, structures, and strategy of their organizations, and who perceive their workplaces as having freedom to act on their own, for a common purpose¹⁰.

Stocki's Open Index tool captures this 'labour-as-action' approach in a questionnaire whose focus is on employee perceptions, but it also includes researcher's observations, data collection, and interviews within the firm. It therefore encompasses the perceptual aspect, as well as the objective and subjective aspects of a firm's performance¹¹. The questionnaire is divided into sub-categories measuring individual perceptions about the conditions, systems and effects of participation in the organization, and the impact on organizational effectiveness (Zmuda et al., 2008, p. 22). The tool captures inter-dependence of the environment in which an organization operates, organization's systems and the extent to which they are conducive to various forms of participation, and organization's effectiveness on the individual level (Zmuda et al., 2008). Figure 1 in the Appendix illustrates the main elements of the Total participation model that form the basis for the tool's development. The model is easiest read backwards from right to left, starting with the effectiveness. The employee may take initiative for the good of the organization at her expense (alienated), or she may take initiative for her own good at the expense of the organization (narcissistic). Personal initiative requires defining the common good – a good for both the organization and the individual. We assume, however, that those actions result from different *personal orientations* – totalistic, individualistic and participative, respectively. The orientations are products of the interplay between environmental (including organizational) influences and individual features, which are created in the process of sense-making i.e. justification of one's actions within a particular context¹². The

⁸ We make a distinction between worker co-ops, owned and managed by workers-members, and producer co-ops, such as those in agriculture.

⁹ This does not necessarily mean that Total participation framework is not relevant in these cases; it just means that benchmarks and expectations may be considerably different from those in worker co-operatives.

¹⁰ In contrast, employee share ownership or participation in work teams are examples of partial participation.

¹¹ Also suggested in Richard et al. 2008

¹² For a discussion on the role of reciprocity in co-operatives see Zamagni and Zamagni 2010, p 32. Reciprocity in economics coincides with the participative orientation outlined here.

environmental and individual characteristics, participative orientations and impacts are included in the Open Index tool (Prokopowicz et al., 2008). A measure of trust, and a measure of organizational maturity are also developed for diagnosing and reporting purposes. These measures are based on employees' responses to selected personal questions. Since Open Index was developed to diagnose the participation levels in an organization, and help its management to evaluate and develop a strong participation strategy, its application would, presumably, lead to the overall positive impact for the organization.

Co-operatives, on the other hand, are guided by ethical values¹³, organizational values¹⁴, and the principles of co-operation¹⁵. The difficulty with co-operative management is that there are no tools that clearly link the daily operations of the firm to the principles and values. Therefore, co-operatives often find it difficult to effectively communicate and manage the appropriate information about competitive pressures, financial pressures, changing member preferences, or other influences that may affect their strategy, yet preserve and promote their co-operative identity at the same time.

The process of adapting the Open index for co-operative firms lead to the development of the Co-op Index tool (Figure 2 in the appendix), which, like its predecessors, relies on the questionnaire for perceptual measures, observations and assessment of documentation for objective measures, and interviews for additional subjective accounts of the evidence of organizational effectiveness. The tool was created with input from practitioners and consultants in the co-operative sector, as well as researchers in various fields (management, sociology, economics, and organizational psychology). The Co-op Index questionnaire contains close to 180 questions sorted into 30 dimensions, grouped into four categories (see Figure 3 in the Appendix) - organizational systems, organizational climate, personal attitudes and actions, and overall effects of the organization (individual, organizational and societal levels). The same questions are re-grouped into the co-operative principles and values¹⁶ categories. The Co-op Index added a few dimensions, compared to the previous two tools, which capture the co-operative difference. Environment and context for the organization gained the organizational principles and organizational values. These values are linked with individuals through a concern for a common good, while individual ethical values are the foundation of the relationship between members in a co-operative organization. Participative orientation is embedded in the democratic governance and control, and other co-operative principles, while participatory practice in co-ops also includes learning through a continual process improvement, coupled with the implicit inclusion of all the stakeholders¹⁷. Lastly, compared to the Open Index where effectiveness is measured on an individual level (Stocki, 2008), the Co-op Index includes measures of all levels of effectiveness-individual, organizational, and societal. This distinction is important as a measure of co-operative "social responsibility" – it is internalized in daily operations, rather than a function of profitability of the organization.

¹³ Personal ethical values: honesty, openness, social responsibility, caring for others.

¹⁴ Co-operative values: mutual self-help, equality, equity, self-responsibility, democracy and solidarity

¹⁵ Voluntary and open membership, democratic member control, economic participation, autonomy and independence, education and information, cooperation among co-operatives, concern for the community and (added) concern for the environment. MCC worker co-operatives also add the subordinate role of capital, social development, social transformation, participatory management, pay solidarity, and labour control.

¹⁶ This modification provides the "missing link" for co-operative organizations, but it can also serve as a benchmark for the co-operative sector and other organizations.

¹⁷ This is true in theory, and is also captured by the Co-op index. In reality, co-operatives can easily turn away from stakeholder concerns under various pressures. This is why measuring and reporting the perceptions and reality of co-op's impacts is critical in maintaining the co-operative identity.

Application of the Co-op Index in Organisational Diagnosis

The Co-op Index diagnostic tool was developed to help worker co-operatives diagnose their performance in light of the co-operative principles and values, allowing them to improve organizational performance in line with these ethical and practical guidelines. By employing the three diagnostic techniques (the Co-op Index questionnaire, employee interviews and on-site observation), both researchers and consultants using the tool are able to diagnose any given organisation with regards to its effectiveness, maturity and the adherence to the co-operative principles and values.

The Co-op Index questionnaire is the core of the diagnostic procedure, measuring the extent to which a given co-operative adheres to the co-op principles and values, as well as its success in meeting its mission. Both the dimensions of the questionnaire and individual question responses are calculated based on the percentage of positive responses for each of the questions, on the scale ranging from “strongly disagree” to “strongly agree”. The Likert-type scale format employed in the tool allows for use of two alternative and complimentary types of scoring in the diagnostic report: basic – with “agree”, “somewhat agree” and “strongly agree” counted as positive responses – and strict – with only the “somewhat agree” and “strongly agree” treated as favourable responses. The questionnaire is administered online, and results analyzed according to the Co-op Index diagnostic model, consisting of 30 dimensions, and covering four vital areas of worker co-operatives’ activity. Co-operatives that take part in this process are evaluated on the scales of adherence to the co-operative values and principles; organizational maturity; and organizational trust. They are provided with in-depth analytical reports on their management systems, workplace values and employee satisfaction. Organizational Maturity Index (OMI) places the co-op on a maturity continuum (scale 0-100), reflecting the extent to which it embodies the key features of successful co-operatives. The maturity level given by the value of OMI determines the benchmarks used to present the results, with higher performance expectations ascribed to more mature organizations. Organizational Trust Index (OTI), on the other hand, provides an assessment on how secure the members and employees feel within the co-op. The report also includes indices measuring how Co-op Principles and Values are embodied in the everyday life of the organisation.

While having the crucial role to the diagnostic process, the administering and analysis of the Co-op Index questionnaire results is only a part of the process. Data collected using the questionnaire has to be triangulated with data elicited with two other research techniques – interviews with key employees in the organization, and the on-site observation in the co-operative firm. These complementary techniques are aimed at both the initial identification of possible organisational issues, and the subsequent in-depth understanding of the findings, providing an invaluable source of data supplementing information collected *via* the questionnaire.

The diagnostic perspective of the Co-op Index is based on the assumption that the condition of vital organisational systems and values are reflected in the attitudes of the workers. This assumption guides the process of assessment and informs the recommendations included in the diagnostic report provided to the organisation. The final report includes a detailed description of the measures used in the diagnosis, results for a given firm based on the described indicators, and a list of comprehensive recommendations aimed at furthering the development of a co-operative in line with the co-operative identity (or, self-described characteristics of an ‘ideal worker co-operative’).

While the practical implementation of the diagnostic results depends heavily on the willingness of a co-operative to implement the recommendations included in the report, the process itself provides the organisation with numerous opportunities to improve their everyday operations.

The use of the report and its recommendations is in part similar to most methods proposing organizational change (eg. achieving a shared understanding of a firm's mission; reaching common ground when introducing organisational change; identifying strengths and weaknesses of an organisation with regards to its managerial systems and using presented information to improve them; etc), but the particular added advantage of the described process for co-operatives is in creating links between the organizational systems and strategy on the one hand, and the co-operative principles and values on the other. The co-operative can use the described process to analyse the extent to which it actually applies the co-operative values and principles in its everyday operations, allowing for a closer alignment of co-operative ethics and practice, and ultimately providing a measure of the cooperative identity and co-operative distinctiveness (or, the 'co-operative difference').

The diagnostic process based on the cognitive theory of total participation is a person-centered method, i.e. a tool rooted in perceptions. Other objective measures, such as financial data, should be used as supplementary to support the findings. That said, financial data are typically collected and reported in co-operatives, while the missing element in evaluating the health of a co-operative business is one rooted in perceptions of its employees and other stakeholders that reports on the delivery of the co-operative values. In that respect the Co-op Index diagnostics is an important contribution to the co-operative sector. With Total participation at its core, the Co-op Index diagnostic method also ensures a measure of full and voluntary engagement of co-operative members and employees in all aspects of its operations, rather than a piece-meal participation as typically treated in the literature.

Conclusions

Employee participation is widespread in organizations. As a management strategy to improve organizational performance, it varies in degree and in type. In the economics of participation the stress is on ownership and control, and therefore the various degrees of returns and decision-making rights. In this context, co-operative firms lie at the extreme end because of their unique, value based characteristics. This paper argues that Total participation theory (Stocki, 2008; Prokopowicz et al., 2008; Zmuda et al., 2008), rooted in organizational psychology, creates a better fit for co-operative firms in light of that difference.

From the perspective of measures of firm performance and effectiveness, Total participation approach offers elements that would constitute a benchmark, or an "ideal" co-operative firm. Echoing concerns in the co-operative sector, we argue that co-operatives need tools that would allow them to incorporate co-operative principles and values into their strategy, as well as their daily operations, and to do so requires ways to measure the degree of adherence to the principles, as well as identify areas in need of improvement. The paper described the Co-op index as one such measure - a tool developed within the worker co-operative sector, based on the Total participation approach, which is used to diagnose key areas of co-operative performance linked to co-operative principles and values. Perceptual aspects integral to this tool (and to the discourse on participation in organizational psychology, generally speaking) are accompanied by subjective measures of performance, and data collection, as required. While tools for other types of organizations have been developed based on the Total participation approach (Zmuda et al., 2008) some key differences in the structure of the Co-op Index have emerged: measures of organizational effectiveness that capture individual growth, organizational goals, and social goals; inclusion of organizational principles and values in the tool's structure; link between organization and individuals through ethical values common to both (based on the ICA 1995 statement of co-operative identity); and the inclusion of the impact on stakeholders.

This and similar efforts to capture the "co-operative difference" have to be made by the co-operative sector in order to measure and improve on their performance based on the co-operative identity.

This element has the potential to add quality to the products and services offered by the sector, differentiate co-operatives as participatory democratic organizations, and identify co-operative social responsibility as an integral part of co-op long-term strategy and a *raison d'être* of co-operative association.

Appendix

Figure 1. Total participation model. Source: Zmuda et.al. 2008

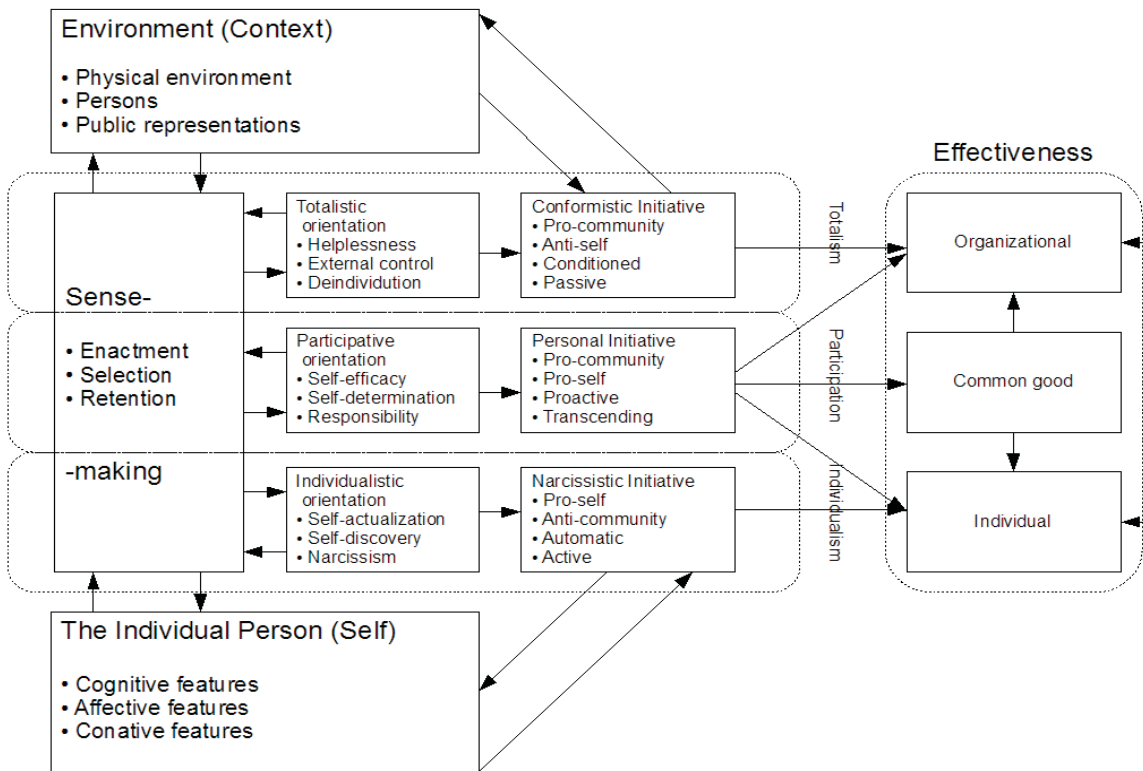


Figure 2. The Co-op index model (Stocki, 2008)

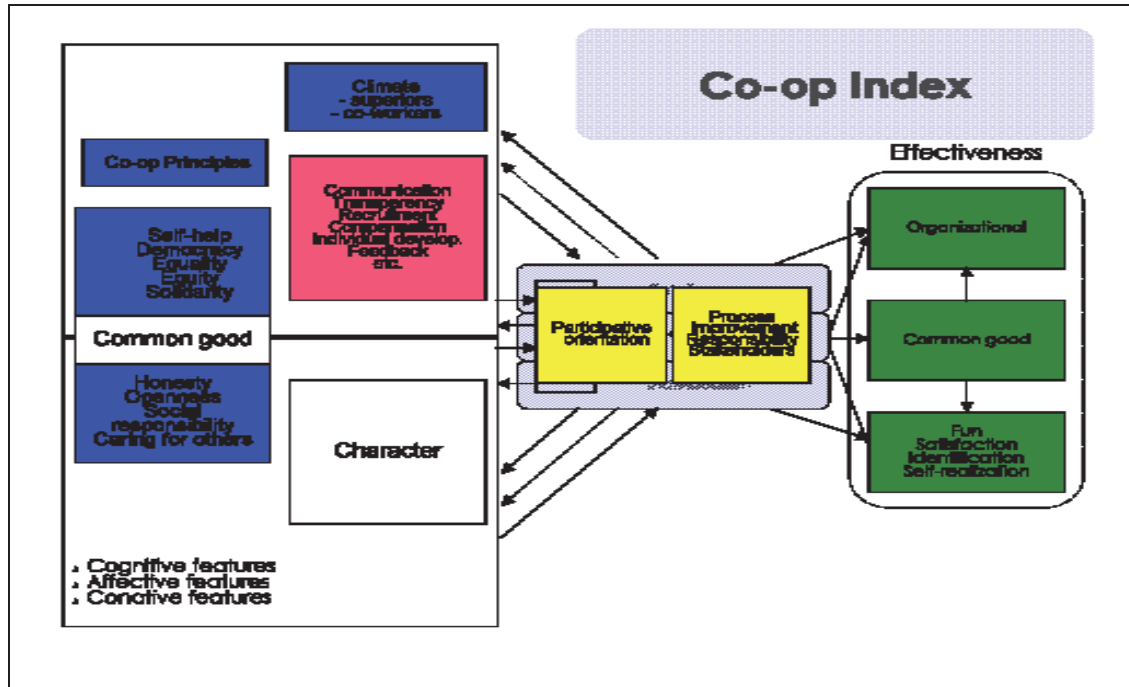


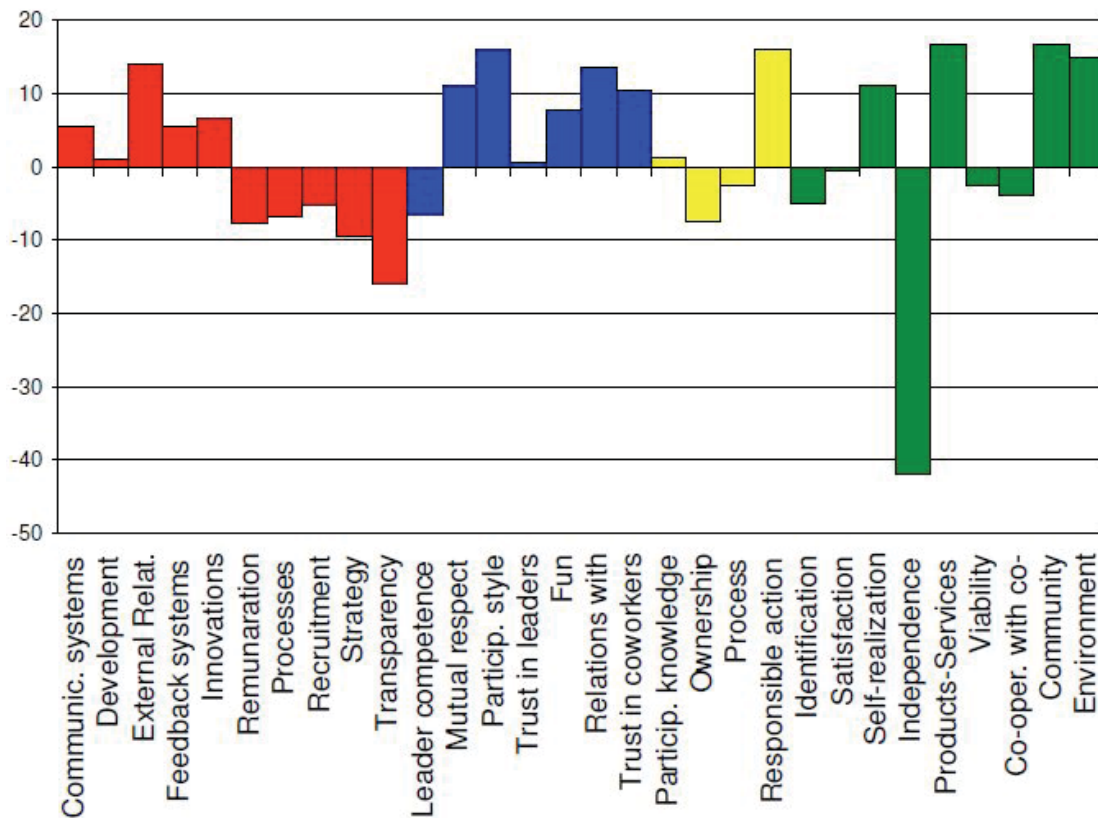
Figure 3. A description of the 30 Co-op Index dimensions, grouped in 4 categories

Dimension	Content description	Impact/ categories
1	Communication systems	Organizational systems (RED)
2	Development of co-op members	
3	External relations	
4	Feedback systems	
5	Innovations	
6	Remuneration	

7	Processes	Relates to individual understanding of tasks, roles/functions, and processes in the co-op. It includes job safety and independence.	
8	Personnel policies and recruitment	Questions fairness and satisfaction with recruitment and membership.	
9	Strategy	Questions about vision, strategy, growth, and member participation in creating the vision for the co-op.	
10	Transparency	Availability and clarity of information about decision-making and challenges.	
11	Leadership	Respect for co-op leadership	Organizational climate (BLUE)
12	Mutual respect	Overall sense of respect among co-op members	
13	Participatory decision-making	Sense of inclusion in decision-making	
14	Trust -leadership	Trust in co-op leadership.	
15	Fun	Sense of humour, friendliness and enjoyment at work.	
16	Relations with co-workers	Organization's culture; getting along with colleagues.	
17	Trust-members	Trust among co-op members and employees.	
18	Participatory knowledge	Co-op business literacy.	Personal attitudes and actions (YELLOW)
19	Ownership	Stress on the perception/sense of individual ownership and responsibility as a member.	
20	Process improvement	Personal initiative and accountability.	
21	Responsibility	Personal ethics and responsibilities.	
22	Identification	Identification with the co-operative organization and sense of job security.	Outcomes: individual, organizational, societal (GREEN)
23	Satisfaction	Job satisfaction and overall work relations satisfaction.	
24	Self-realization	Questions self-fulfillment at work, professional development, as well as balance between personal and working life.	
25	Independence	Independence from external influences in decisionmaking- both public and private.	
26	Products/services	Relates to the quality of the products/services and impact of co-op principles and values on products and services.	

- 27 Viability Business viability from the market access perspective, financial perspective and organizational/functional perspective.
- 28 Cooperation with other co-operatives Networking with other co-operatives and development of the co-op sector.
- 29 Community Concern for community development and role of the co-op in its community.
- 30 Environment Environmental sustainability, care for the environment and leadership regarding environmental concerns.

Figure 4. The General Picture chart based on a pilot Co-op Index diagnostic report (Source: Hough, 2009).



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Organizational Theory - Theorie des Organisations

ASB 2010
Halifax, Nova Scotia, Canada

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BATTLE OF NARRATIVES IN A CHANGING FMCG DISTRIBUTION CHANNEL

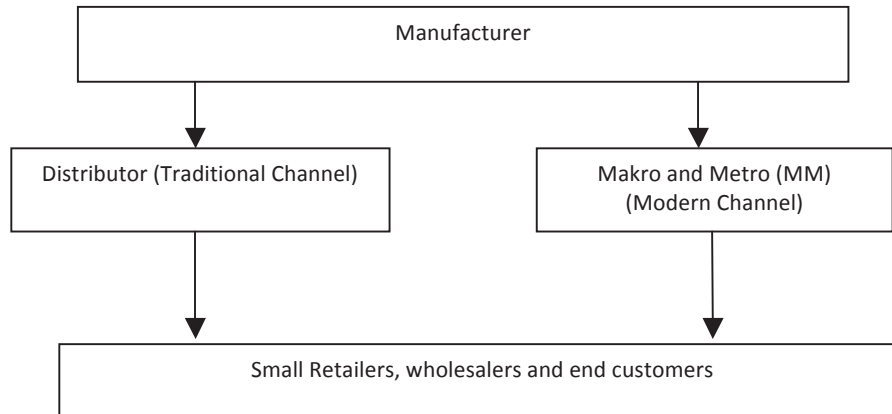
This paper presents analysis of power relationships between different groups in Pakistan's FMCG distribution channels through narrative inquiry approach. Different groups in a channel deploy group narratives on which battle for power is waged. A focus on narrative is valuable for academics as well as practitioners, as it provides an alternative and insightful method for analysis of power relationships between different groups and organizations in a channel.

Setting the Scene

The term 'channel' is extensively used in sales and marketing literature in which it generally represents networks of distribution and wholesaling businesses on the demand side of a supply chain. In most Asian countries, in the absence of large superstore style retailing formats, these businesses typically engage in sales and distribution of products of manufacturers to a large number of small independent retailers. Pakistan's Fast Moving Consumer Goods (FMCG) distribution channel consists of three dominant organizations. These are manufacturers (brand owners), the distributors and international wholesalers Makro and Metro, here onwards called 'MM'. The distributors represent the traditional side of the channel, whereas MM represents the modern side. See Figure 1. Traditionally the manufacturers who are also the brand owners used to sell and distribute their products through local distributors. These distributor businesses distribute these products to around half a million small convenience style retail outlets in the country. The distributors have salesmen who deliver the products to the retailers at their doorsteps. Entry of MM in 2008 has provided an alternative channel in the country, in which the manufacturers sell their products directly to MM without the involvement of distributors. Retailers and some affluent end customers come to MM's premises to buy the products (Aman &

Hopkinson, 2010). Thus the role of traditional distributors is eliminated in this modern alternative. Thus MM and local distributors are now in direct competition.

Figure 1: Simple Flow of FMCG Products



The entry of MM in Pakistani market in 2008 provided an interesting situation as it was perceived as a major change in the existing structure. Various channel roles were being redefined, power being exercised and resistance being posed by channel organizations. To collect primary data in this interesting scenario, the first author made two extensive trips to Pakistan to interview people working in these organizations in the channel. He interviewed 39 participants in the manufacturer's business, the distributors' businesses and in MM. The interviews were recorded and notes were taken. After a careful content analysis of the data that emerged out of the interviews, we came up with the 'group narratives' told by people in five different groups in the channel. Two of these groups are managers of MM and the owners of distribution businesses, here onwards called the 'distributors'. In this paper we will focus on only these two groups and their group narratives.

We use Andrew Brown's strategy of writing narratives of different groups in an organization where the author takes up the position of the spokesperson for the groups and writes the narrative on the behalf of the groups. 'The illusion that these groups speak for themselves is just that, an illusion. It is an authorial strategy that makes the researcher/author the spokesperson for others, which requires him/her to explicitly acknowledge his/her 'own participation in the construction of social reality', and which dictates the need to be reflexive about the representations s/he has produced (Knights, 1992, p. 515)' (Brown, 1998).

It is worth mentioning here that construction of these narratives, as Brown argues, 'is not just a 'writing up', but an artful process involving the manipulation of research material to produce a plausible account. (Atkinson, 1990; Watson 1995)' (Brown, 1998). It is also worth noting that this whole paper could be recognized as a narrative which is 'designed not just to inform but to persuade' and that in this paper like in any other research, 'it is the author's voice, not the research participants, that is most privileged'. (Brown, 1998).

In this research paper, we aim to discuss the power relationships between the different groups in a channel through the narratives these groups construct. Complex questions like which group's narrative is more powerful? Which narratives sit comfortably with each other in the channel and which narratives engage in resistance based relationships, are explored. We argue that power

relationships between different channel groups can be studied by studying power relationships between collective identities constructed in their group narratives and that by doing so we can deepen our understanding of power, hegemony and resistance exercised by different groups in a channel.

To set the scene for the upcoming battle of group narratives, we will briefly discuss the concept of power and its application in channels research. After that we will discuss the inseparable relationships between power and narrative and narrative and collective identity and the scarcity of such research in channels literature. Then, we will present the three group narratives, namely, MM's narrative of Confidence, Distributors' narrative of Endurance and Distributors narrative of Despair. Discussion on power and politics of these narratives and relationships between these group narratives will be followed by conclusions.

The concept of power remains at the centre stage of organization theory research. The concept has come a long way from Robert A. Dahl's (1957) notion of power in which he defined power as 'a quantitative capacity where A has power over B if A can get B to do something that B wouldn't otherwise do'. Following intense scholarship which rejects Dahl's fixed notions of power (e.g. Foucault, 1979), organization theorists in the past decade or so have engaged in the discursive aspects of power. This research on organizational power is closely associated with power embedded in organizational narratives. For some researchers, creation of a narrative by an individual of a group is an act of power (e.g. Vaara 2002). For Brown (1998), 'power is not a thing and nor it should be thought as an unexercised capacity. Power is, in part at least, expressed in and through narratives which groups deploy to legitimate interpretations that they believe favour their interests'.

Authors of narratives while constructing a narrative also construct identities of different actors, including their own. 'Construction of narratives and identities is an intertwined process. Inevitably narratives construct subject position and attach identities to actors' (Vaara, 2002). In 2006 Andrew Brown highlighted the construction of collective identities in group narratives and their possible hegemonic implications.

Power as a concept has dominated the channels literature throughout 1970s. The first attempt to define and measure power in channels literature was made by El Ansary and Stern in 1972. Their definition, although modified, revolves around Dahl's understanding of power. This definition has been used extensively in the channels literature ever since. Power in marketing channels research has rarely been studied in its discursive aspect. Exceptions include Gillian Hopkinson's work (2001, 2003). Thus, there exists a considerable gap in this area. In this paper, by using social constructionist lens, we employ narrative methods to study power relationships between different channel groups and strive to contribute to the thin literature available on discursive power in channels.

Before we present the three narratives, we feel compelled to share our understanding of a narrative. We subscribe to the view of Ricoeur (1984): 'A story (narratives) describes a sequence of actions and experiences done or undergone by a certain number of people, whether real or imaginary. These people are presented either in situations that change or as reacting to such change. In turn, these changes reveal hidden aspects of the situation and the people involved, and engender anew predicament which calls for thought, action or both. This response to the new situation leads the story towards its conclusion' (as in Brown & Humphries, 2008).

In the interviews, management of MM had only one group narrative to tell i.e. narrative of Confidence, whereas distributors told two distinct narratives. These are narrative of Endurance

and narrative of Despair. We now present these three dominant group narratives present in the channel just after the entry of MM in Pakistan.

Narrative 1: Makro and Metro's (MM's) Narrative of Confidence

Section 1.1: 'Old days were 'Bad''

Before the entry of MM in the Pakistani market, the market situation was really bad. Pakistani customers had to suffer because of inefficiencies in the system. Thus the customers not only ended up paying more for their goods but also received inferior service. 'Take example of a restaurant owner, everyday he or his employee had to go to vegetables market, where he would find a middleman, then to meat market, there again he would find a middleman, and then to grocery wholesale market where he again would find a middleman, and at the end of the day the middlemen would take all the profits' (Manager Makro).

Other than this, 'retailing and wholesaling in this country was totally undocumented before we came. Nobody in the retailing business used to pay any tax to the government. Thus, the people of Pakistan were losing out due to this type of distribution structure. Moreover, due to lack of foreign investment in the country, unemployment in the country was rampant. There were so many young graduates who were unable to find decent jobs' (Manager Metro).

Section 1.2: 'Then we (MM) came in'

Given the fragmented retail and the increasing buying power of Pakistani customers, we evaluated the market and we thought that there was huge opportunity awaiting us. So we entered the market.

Section 1.3: 'We (MM) are Benefactors'

'Because of the unorganized retail sector in Pakistan, there is a large number of middlemen (distributors) and due to their presence the retailers of the end customers cannot get good price. We want to provide best service to retailers or to the end customers at the best possible price. We want to pass on the price benefit to our end buyer' (Manager Makro). Thus, we are now giving an alternative channel, an alternative to the middlemen. 'The local businessmen like the shop owners and restaurant owners can now focus on their business better. They do not have to run around and go to different places to get better deals. They can get everything at lower prices from us, right under one roof' (Manager Makro). We are definitely helping the local businesses and the local economy.

We are not here to hurt anyone or to harm anyone's business, not even the distributors or the middlemen. We are here to provide alternative channel, which is going to increase the size of the overall market, thus creating opportunity for existing and new businesses. 'We are here for the benefit of everyone. To protect the distributors, we have this policy of discouraging sales to end customers, and restricting our sales only to retailers, who would normally buy from traditional

wholesalers, however, if end customers start coming to us, we cannot stop them from doing this. We are here to do business and to provide lower prices to everyone' (Manager Makro).

'Since we are multinational investments, we abide by all the rules of the land. We regularly pay taxes to the Pakistani government. This has started a new era of revenue generation for the government in the retail sector. It is unprecedented in the history of the country. This obviously is going to benefit the government and in turn, the people of Pakistan' (Manager Metro).

On top of other benefits we provide to the country and to the people of Pakistan, we also help in creating more jobs for local people. 'Our stores employ hundreds of people, and thus create hundreds of job opportunities in Pakistan.' (Manager, Metro)

Section 1.4: 'Manufacturer is Powerless and Business Savvy'

'Multinational manufacturers do not have an option but to cooperate with us. We have international agreements with these multinational manufacturer and they have to abide by these agreements. Our relationship with a multinational manufacturer here can affect our relationship with the manufacturer elsewhere in the world. Thus, the manufacturers cannot afford to turn away from us' (Manager Metro).

Other than the international agreements we have, it is also in the business interest of the manufacturers to cooperate with us. 'They recognise this. We are giving them huge volumes of business as single buyers. This has huge advantages. They do not have to worry about so many distributors and then so many small shops. They can reduce their sales workforce. They just have to sell the products to us and we do the rest of sales and distribution for them. Manufacturers are not stupid, they are not cooperating with us just because of international pressure, but because of the real economic gains they can get from us' (Manager Makro).

Section 1.5: 'Pakistani Customers are Rich and Pro Modern Channel'

We believe that both Pakistani retailers and end customers are changing their shopping habits. 'The disposable income in the country has risen which has led to changes in the shopper behaviour. Opening up of international food chains is an example. People of this country want to get international experience in everything, be it entertainment, food, clothing or grocery shopping' (Manager Metro). In the past decade or so everything in this country has changed. 'A couple of decades ago a family having dinner in a restaurant was frowned, upon, as it was thought that the lady of the house (*Khatoon e Khana*) could not make a proper meal at home. But now have a look at KFC anywhere in the country at night. It is difficult to find a seat there on Saturdays. So the point we want to make is that there is huge market of our stores in the country, not only for the urban retailers but also for end customers' (Manager Makro).

Section 1.6: 'Distributors are Less Significant'

The monopoly of distributors is now challenged as we have introduced this parallel channel in the market. With the growth of the modern formats, the significance of distributors in the distribution structure is diminishing. 'Manufacturers are realizing that distributors are a burden on them as they have to have a large army of sales force to manage their relationships with these

distributors. Moreover, with the change in the shopping behaviour of Pakistani customers means more business for modern formats. Thus the distributors are losing their importance in the channel' (Manager Makro).

Section 1.7: 'Our future is Promising'

'We are not going to run away from this country, we are here to stay' (Manager Metro) . Given our international expertise and knowledge and the growing need for modern formats in the country, our success in Pakistan is inevitable. 'Thailand was also very similar to Pakistan, lots of retailers, no organization but things have changed there. We are now a big business there and this is what we are going to be doing here.'(Metro, Manager). We are the future. We have started off from the bigger cities of the country, and we have medium and long term plans of expansion into level 2 and level 3 cities' (Manager Makro). We look forward to working with other channel members in the long term.

Narrative 2: Distributors' Narrative of Endurance

Section 2.1: 'The Good Old Days'

We remember the days before MM entered into Pakistan market, when everyone was happy. We were happy, the manufacturers were happy and the retailers and wholesalers were happy.

We, the distributors, used to enjoy privileged position in Pakistan's FMCG channel structure. 'There were times when we were considered the elites of the cities we used to work in. We were 'sort of *chaurdhries* (meaning similar to local kings), and had connections with the higher ups in the right positions' (Lodhi). 'There were instances when the products used to get out of stock in the market, people used to queue outside our offices for products, and we could choose our customers. There were times when there was no need of sending salesmen to shops as people used stand in queue outside our offices' (Seth).

'The Area Managers of companies (manufacturers) used to speak to us with a lot of respect. In fact, the promotion of these Area managers used to depend on how good they were in maintaining close ties with us' (Sheikh). We were so powerful that some of the Area Managers of the companies would get hired by us after they retired from the manufacturer. The companies used to listen to us as we were the only channel.

Money was also very good. The Return on Investment (ROI) was much better in those days. 'There was joy in doing business. We used to be the *badshah's* (kings), we set the targets for our ROI, not the manufacturer' (Lodhi) and the manufacturer did not used to have problems with that. The manufacturer needed sales and we used to give it to them.

Our salesmen were happy and used to get good commission. The retailers were also happy as they used to get served promptly. If they could not find the product in the market they could always visit our distribution shop and get the products. Even when the things were in our control, 'our salesmen went to every nook and corner of the city to deliver our products. Thus, the service provided by us was extraordinary. Even the far flung retailers got their deliveries on their doorstep, thrice a week' (Gillani).

In short, life was good as we were in charge of ourselves. There was no direct competition as such, and we and our employees had a lot of respect in the channel as well as in the local social circles.

Section 2.2: ‘Then came MM’

We had started hearing about MM coming to Pakistan a long time ago. In fact we had visited some of their stores as manufacturers took us abroad so that we could see these formats. ‘These stores were massive, nothing of the sort you could see in Pakistan in those days’ (Sheikh).

Section 2.3: ‘Manufacturer is Powerless’

We were excited to see these stores there and thought that it would mean more business for us. But to our surprise ‘we were told by the manufacturers that these stores would be serviced directly from the manufacturer’s warehouses and not through us. This caused a stir in our circles and a lot of anger and frustration started developing amongst ourselves’ (Sheikh).

Some of us went to see the manufacturers to convince them so that they do business with MM through us. But they said that this is beyond their control. ‘They (manufacturers) say that this cannot happen. They are helpless’ (Gillani). They said that ‘since they have relationships with MM internationally, and they sell the goods directly to them abroad, they must follow the same format here’ (Lodhi). We even offered to reduce our margin significantly for sales to MM, but they could not do it for us here in Pakistan. And this is true, ‘nowhere in the world the manufacturer sells to these stores through the distributors’ (Sheikh). We believe that ‘manufacturers were under tremendous international pressure, otherwise why would they want to act against us, as we used to take care of 100% of their business’ (Lodhi).

Section 2.4: ‘as well as a Business Savvy (the manufacturer)’

But we also think that the manufacturer is shrewd. The manufacturer has realized that it makes sense to cooperate with MM and to develop them here in this country. We know that the manufacturer does not care about us. We have understood that ‘there is no such thing as loyalty....we are all prostitutes’ (Sheikh). All we care about is money; we go wherever we get it.

If we put ourselves in the manufacturer’s shoes, we would have done the same, ‘see for yourself, the manufacturer has to keep a TSO (Territory Sales Officer) for every distributor. You tell me how much does that cost per month? At least PKR 100,000, right? Now look at MM, they just have one KAM and two Assistant KAMs in Karachi and Lahore and they are running the show. Plus, have a look at the margins, when the manufacturer deals with MM, they have more margins to play with. This is business, ‘survival of the fittest’ (Sheikh).

‘They (manufacturer) call us (the distributors) ‘Valued Business Partners’ but that is just the name. There are many distributors in Lahore and Karachi who are crying because of MM. What we believe now is that, agreed, there is some regard for distributors by the manufacturer as long as there is hope that the relationship is going to be profitable in the long term but there is nothing more than that’ (Raja).

Section 2.5: ‘MM is Bloodsucker / Robber’

We initially thought that MM were not going to harm us as Pakistan is a different country where people are not used to of going to such stores. Plus ‘we believed that since MM were coming in wholesale format they would not really affect us that badly, as all we would lose were a couple of local wholesalers and some rural retailers. Plus, we also thought that with this format they would not be able to survive in Pakistan’ (Sheikh). ‘We had seen the fate of Metro in India’ (Lodhi). But this belief of ours was only short lived as both MMs have changed their strategy dramatically. Within no time they have done away with multi packs and lifted customer restrictions. ‘Their official story that they are ‘professional wholesalers’ is just bullshit’ (Seth).

MM is ‘not sticking with their original story (that they are going to sell to professional customers and retailers). This is not happening.... this is just a drama (a lie). They sell to everyone.... and they encourage it. Minimum purchase requirement of PKR. 2,000 is also senseless as these days everyone buys in excess of this amount’ (Sheikh). This has started to hurt us really bad as this strategy of MM is taking away our direct urban end consumers who are our bread and butter.

MM keep on telling us directly and as well as through the manufacturer that they are not going to harm us and that they are going to increase the overall pie of the business. ‘This is just crap, they are competing directly with us and want to destroy us’ (Sheikh). Every single sale they make through their stores in our territories is our lost sale. We think that MM are really after us and that ‘they will do anything to get our business’ (Raja). They even want to deliver products to our customers through salesmen. ‘They want to take up our advantage of doorstep delivery’ (Seth). We have caught salesmen of MM in the local wholesale market a couple of times which proves our point.

Moreover, ‘MM and shops of this sort are foreign investments. These (foreign investments) are bad. Agreed they bring money from abroad, invest it in this country but at the end of the day they rob the money of the poor consumers and send their profits abroad. The traditional or local retailers may have many drawbacks, but at least they keep the money within the country. They are not going to suck the blood of the poor people’ (Gillani).

Section 2.6a: ‘We (Distributors) are Indispensible’ and ‘Pakistani Customers are Poor and Pro Traditional Channel’

MM is trying to invade our business but we are the backbone of the distribution system of any of the manufacturers in the country. We contribute 97-98% of sales of any manufacturer in Pakistan. A manufacturer cannot run its business without us.

‘How many people have cars in this country? How many people are actually going to go to these stores to shop? We believe that these are shops only for the gentry and not for common people, and most of our business comes from common people and from small shops’ (Lodhi). They (MM) cannot just come and take over our business. We are fully grounded in the fabric of Pakistani society. We will not be hurt by MM.

There could be a short term fad, as ‘we are a crazy nation and accept everything that comes from abroad’ (Butt), but this will remain only for a short while and after people realize that they end up paying more at MM due to extensive displays and self service, they will come back to local shops which are serviced by us.

The retailers also don't really like MM, because 'one, the prices are not that good, two, the retailer has to allocate one full day to shop at MM, and has to pay for transportation. We provide service and goods at doorstep. Why would a retailer go there? Most of the retailers are going there just to see how the store looks like, so that they can say that they have been there' (Raja).

Other than our firm commercial grounding in the structure of the channel we are also a part of the channel (traditional channel) which takes care of not only the grocery related needs of ordinary Pakistanis but also of the welfare of the citizens of this country. For example, 'You go to a village, or even to a small locality in Lahore, over there you will see many small retailers people know these retailers and the retailers know their customers by name and it is sort of a 'hang out' place for the people. They sit on the '*thara*' (meaning steps outside a shop) and discuss things so it is sort of a social place for the locality you can't do it at MM' (Gillani), as they are too modern for this. Plus 'we are a poor country and a huge chunk of our employment comes from retailing (small retail outlets). It is about 15-20%. It is livelihood of so many Pakistanis. If you go to villages, you will see so many women running grocery shops. It is very common that you will see a village house, where they have converted their drawing room into an outlet. So it (traditional trade) is an integral part of our society, and it gives us (Pakistanis) the opportunity that modern formats can never provide' (Gillani).

Section 2.7a: 'Thus, our future is Promising'

Thus, due to importance of traditional channel in Pakistan's retail industry, 'we feel that these international formats will not be successful in Pakistan. We have seen the case of Metro in India. It has been years that they are still trying to expand outside Bangalore, and have not been successful' (Lodhi). We also believe that big manufacturers might have cooperated with MM in the short run, but this cooperation is not sustainable in the long term since most of manufacturer's sales come through us. 'They (manufacturers) would not cut their feet with their own axe' (Butt). We understand that MM is posing a threat to us and manufacturer is not helping us currently but we feel that we will overcome these difficulties and will remain successful businesses.

Narrative 3: Distributors' Narrative of Despair

For this narrative please read Sections 2.1-2.5 followed with Sections 2.6b and 2.7b

Section 2.6b: 'We (Distributors) are Less Significant' and 'Pakistani Customers are Rich and Pro Modern Channel'

Times have changed now. 'We do not have that type of *Badshahat* (kingship) anymore. The joy of doing business has been lost' (Seth). 'Sometimes we are out of stock on a product and it is available at MM' (Seth). This is very disrespectful. The manufacturer has also started spending a lot of money on in-store advertising in these stores, and as a result we get very thin budget for this type of advertising in our territories. It is the first time that we have seen cuts in in-store advertising budgets in our territories. This really hurts our relationship with local retailers. Due

to limited resources available now, manufacturer personnel have started taking more and more control of our business. ‘We are questioned on everything we spend and how we do business’ (Sheikh). Area Managers who used to act as our subordinates a few years ago now act like our bosses. We cannot function properly due to these issues.

We are scared here. Some of us say that they will threaten the manufacture or quit the business, but the business situation is such that we cannot go anywhere. ‘Many of us say that they will raise their voice in front of the manufacturer but when the time comes they all chicken out and listen to what the manufacturer is saying’ (Sheikh).

Pakistani customers also favour MM. ‘Retail internationalization is taking place everywhere in the world and customers are increasingly shopping monthly and weekly with the rise in income levels. Thus, the modern formats are becoming more popular’. In terms of purchasing power of the customers ‘who says we are a poor nation. No, we are not. We drink mineral water. We want to do whatever the westerners do and we worship whatever comes from the west. I don’t think that we have lack of money. Have you been to City and 7th Avenue (names of local superstores)? Have you seen how many servants are there shopping for the ‘*Begmaat*’ (meaning wives of the rich) there? There is abundance of money’ (Sheikh).

Section 2.7b: ‘The Gloom the future holds for us’

We feel that ‘there isn’t any potential left for the distributors in this country now’ (Seth). With every passing day and month our share in the market is decreasing and there is nothing we can do about it. We are trying to carry on with the business till the end, but we feel that we must now look for some other business opportunities. We acknowledge that ‘overall, business in the country is becoming tough’ (Sheikh), but it can’t be tougher than the circumstances we are facing in this business. Over here, ‘our sales are going down and we have immense amount of credit stuck in the market’ (Seth). We are pretty sure that we will not be able to carry on for long without a level playing field.

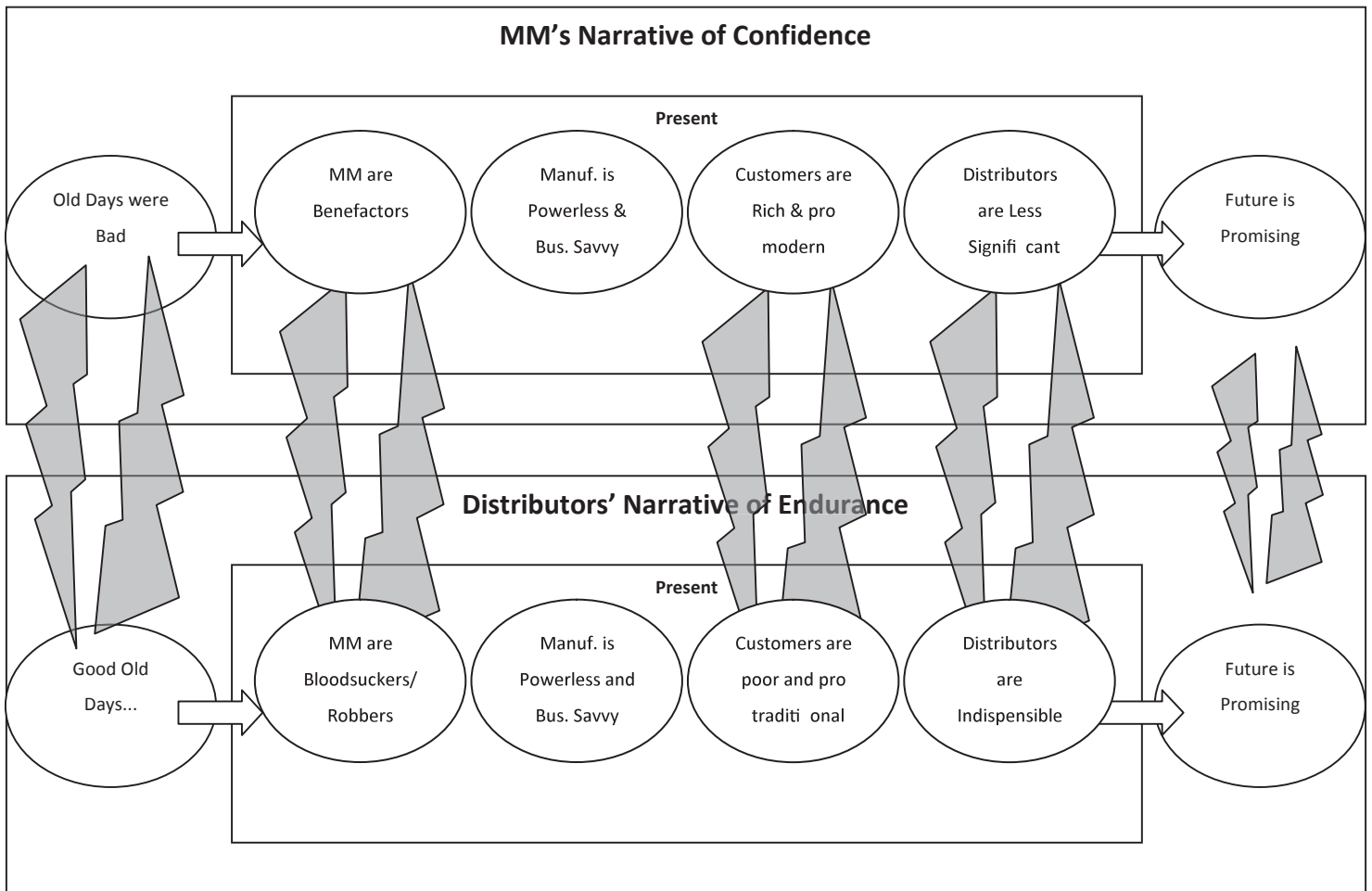
The Battle: MM’s Narrative of Confidence and Distributors’ Narrative of Endurance

Competing groups construct their own realities by telling stories and thus engage in battles over these competing realities. The narratives constructed are hegemonic in nature and try to mobilize and reproduce active consent of other groups (Clegg, 1989). Thus, we see here that the two groups author narratives which negate the realities claimed by each other’s narratives. We will here discuss the hegemonic nature of the narratives and will highlight the power struggle these narratives engage in.

MM’s narrative of Confidence constructs a reality in which MM is in a superior position in the channel. The narrative suggests that the overall channel was in a bad state before MM came in. Most of the channel members were suffering because of the inefficiencies. Then MM came in and tried to resolve all the issues. Thus, MM is constructed as a Benefactor. Construction of Manufacturer as Powerless and Business Savvy can be seen as an attempt to consolidate MM’s position in the channel as a superior member which has international experience and which is highly valued by the manufacturer due to economic reasons. The narrative also constructs the distributors as insignificant but relieves MM of any accusation of causing any harm to the

distributors. The narrative projects distributors as outdated but suggests that the distributors can still continue with their businesses successfully. The narrative then constructs the Pakistani customers on their side who are rich, modern and love shopping at modern formats, thus the future of MM in Pakistan is very bright. The narrative clearly constructs realities which project dominance of MM in the channel. These realities or construction of identities can surely be seen as an attempt by MM to consolidate a powerful position in the channel.

Figure 2: Power Relationship between MM’s Narrative of Confidence and Distributors’ Narrative of Endurance



The distributors author a counter narrative (Bamberg & Andrews, 2004) here called the narrative of Endurance, in which most of the realities and identities constructed by MM are challenged and alternative realities and identities are constructed (See Figure 2). As opposed to MM’s construction of old days as ‘bad’, the distributors portray old days at ‘good’, thus rejecting the foundations of MM’s narrative of Confidence as it undermines the necessity of MM’s presence in the country. The narrative then poses strong resistance to the construction of MM as Benefactor. The alternative construction of MM’s identity is quite the opposite, which is Bloodsucker or Robber. Interestingly both narratives construct similar identities of manufacturer.

MM's narrative constructs manufacturer as Powerless to create a superior and internationally influential position of MM, whereas the distributors' narrative of Endurance constructs this identity to suggest that distributors are facing current challenges alone and that there is no one to help them. Distributors' narrative also does not challenge the construction of manufacturer as Business Savvy. This is an interesting phenomenon, because in such a construction of manufacturer, the distributors in their narrative are accepting the value of the business proposition MM holds for the manufacturer. This acceptance of manufacturer identity can be seen as a sign of weakness of the distributors' narrative as it threatens the construction of distributors' identity of Indispensability, as we will discuss later.

The distributors' narrative of Endurance strongly resists the construction of Pakistani customers as Rich and pro modern channel. The narrative constructs an alternative identity in which Pakistani customers are Poor and pro traditional channel, thus, strengthening the position of the distributors in the channel. Similarly, the narrative also rejects the Less Significant identity of distributors and constructs the distributors as Indispensable. Both the narratives then construct the future of their respective groups as promising. Since the narrative of the distributors, in many places, suggests that the prosperity of either of the groups is mutually exclusive, this construction of future of distributors as promising resists the construction of future of MM as bright as given in MM's narrative of Confidence. On the other hand, since MM's narrative portrays MM as benign benefactors, the narrative does not seem to have any problem with the bright future of the distributors. Since the resistance regarding the future of the channel members is posed only by the distributors' narrative, and is not both ways, we have denoted this resistance with small shaky arrows (see Figure 2).

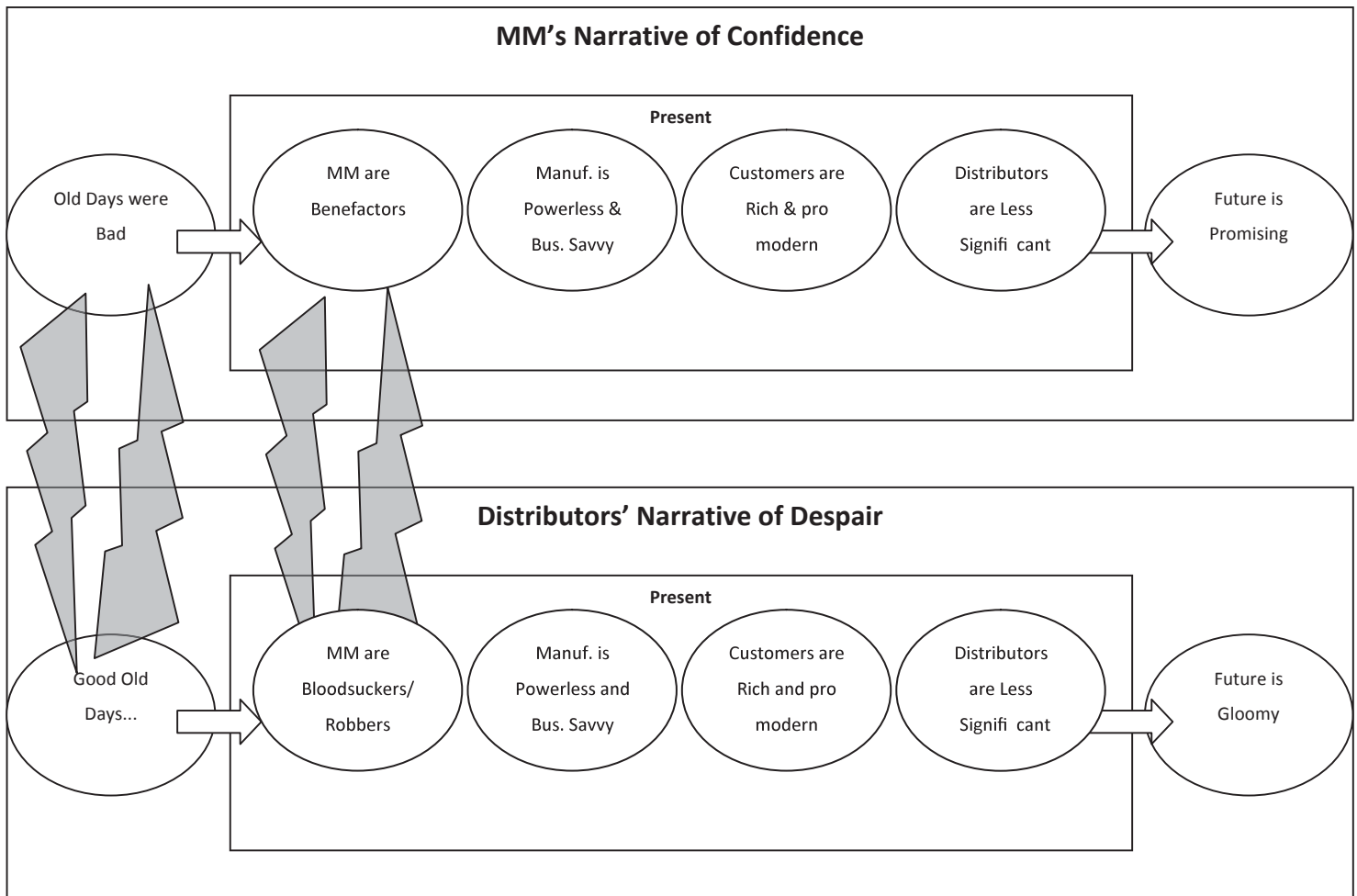
Reflexivity in narratives and collective identities as per Andrew Brown (2006) 'refers to 'that which turns back upon, or takes account of the self' (Holland, 1999, p.464)'. In other words it points towards how a group narrative constructs or positions the narrators in the overall narrative. We believe that a group narrative which constructs a coherent and consistent position of the narrating group is a strong narrative, whereas the one which constructs a dichotomous or paradoxical position of the narrating group is a weak narrative. MM's narrative of Confidence seems relatively stronger than the distributors' narrative of Endurance as it never compromised on the powerful position of MM, and maintained a coherent position of MM. The distributors' narrative of Endurance seems slightly weaker as it accepted manufacturer's Business Savvy identity. This acceptance of manufacturer's Business Savvy identity suggests acceptance or accommodation of economic value of MM for the manufacturer. This weakens the position of the distributors, and creates a paradox in which on one hand the narrative accepts the economic value MM has for the manufacturer and on the other hand the narrative constructs the distributors as economically Indispensable for the manufacturer. Thus, the distributors' narrative of Endurance, being low in reflexivity, does not establish a clear position for the distributors.

It is important to mention here that the battle can be analysed the other way round as well, meaning the distributors' narrative of Endurance could be discussed first followed by discussion on the resistance posed by MM's narrative of Confidence. We believe that the results from such a discussion would also point towards similar phenomena. We will now discuss the relationship between MM's narrative and the distributors' other less narrated but distinct narrative, the narrative of Despair.

Compliance : MM's Narrative of Confidence and Distributors' Narrative of Despair

We argue that in the battle of narratives discussed above MM’s strong narrative of Confidence has fractured distributors’ relatively weaker narrative of Endurance and created space for distributors’ narrative of Despair which is complying with MM’s narrative of Confidence on most grounds. Narratives of both the groups now sit easily with each other, where MM’s narrative of Confidence has clearly taken the dominant and more powerful position and the distributors’ narrative of Despair has taken a subordinate position. This could be a reaffirmation of power of MM’s narrative of Confidence.

Figure 3: Power Relationship between MM’s Narrative of Confidence and Distributors’ Narrative of Despair



Distributors’ narrative of Despair poses very little resistance to MM’s narrative of Confidence (see Figure 3). The only resistance is in the alternative construction of the old days and the construction of MM’s identity. The distributors’ in their narrative of Despair, despite their compliance with most of the realities and identities constructed in the narrative of MM, do not accept MM as Benefactors, and continue to construct a rather ugly identity of MM. Moreover, the narrative of Despair also constructs old days as good versus ‘the bad old days’ construction

given by MM's narrative. The narrative poses this minimal resistance to maintain a distinct position of the distributors. If this minimal resistance was not there, the narrative would have converted itself into MM's narrative of Confidence and the distributors would have lost their distinct narrative.

The Despair narrative says that MM is bloodsucker and the manufacturer is powerless. The manufacturer has not saved the distributors from the evil of MM, in fact the manufacturer has shown its inclination towards MM due to economic reasons. The narrative further says that Pakistani customers are leaving them and that the distributors' have become unimportant and thus there is forecast of gloom.

The domination of MM's narrative and subjugation of distributors' narrative must not be taken as the final status of these narratives. Embedded in the distributors' narrative of Despair is power which could rupture MM's narrative of Confidence. The gloomy future of the distributors' is certainly not included in MM's narrative and this is where the distributors narrative could rebound. Since the distributors' contribute 97% of manufacturer's sales in the country, a gloomy construction of the future of the distributors could trigger a response in the narrative of the manufacturer (which is not included in this paper) which could result in fracture in the MM's narrative of Confidence and acceptance of distributors important role by MM in the overall channel.

In terms of identification of powerful or weak group narratives in a channel, we conclude that the narratives which have a dichotomy or a paradox in their reflexivity tend to be weak and are more susceptible to be influenced by other more powerful narratives (e.g. Distributors' narrative of Endurance got fractured by MM's narrative of Confidence). Group narratives which are able to fracture the narratives of other groups, by accomplishing acceptability of realities and identities by other group narratives are deemed more powerful (e.g. MM's narrative of Confidence). Moreover, these are always elements of resistance in even the most complimenting group narratives. These elements are there to maintain the distinct discursive positions of the groups involved.

Discussion and Conclusion

In this paper we have demonstrated the battle in which the narratives authored by different groups in a channel engage. Our analysis is consistent with the ideas of prominent scholars who have studied discursive power, and have advocated that power is never fixed and is always in a flux. Similarly the power relationships are never stable and are always in the state of becoming (Currie, 1998).

In this paper, we advocate that the concept that organizations are storytelling systems (Boje, 1995) needs to be applied to channels as well. We argue that channels are also storytelling systems, and that different groups in the channel author their group narratives which are hegemonic in nature. These narratives define the power position of these channel members in the overall channel. A study of these power relationships can give an insightful picture of the power positions of different groups. Narrative research, while providing more dynamic understanding of the changing power positions and roles of different organizations in channels as well as of different groups working within those organizations, also provides an alternative to realist or positivist lenses being used in the study of power in channels.

The paper also presents an alternative perspective of looking at power relationships between narratives without the presence of ‘official’ narrative or grand narratives (Aaltio-Marjosola, 1994). The study goes contrary to many researches on power and narratives in which a grand narrative is resisted by relatively unheard ‘smaller’ narratives. We argue that in channels where organizations and groups within organizations are loosely linked, there is no grand narrative. There are only dominant narratives which are always in a state of becoming or being completed. At times the narrative of one group dominates the voice of the channel whereas at other times narrative of another group could take up that position. No narrative takes up a complete shape to dominate the narratives of other groups in totality. This concept of power relationships between micro narratives (not to be confused with Boje’s micro storia, 2001) and not between the grand narrative and smaller narratives, could help organizational theorists understand the ongoing power struggle between different groups in an organization from a fresh perspective.

Concept of temporality as given by Brown in 2006 suggests that narratives engage in power struggle over the historic accounts they construct regarding an organization. Many narrative researches have been done in which the authors highlight alternative historic or nostalgic accounts (Brown & Humphries, 2002) constructed by participants. We argue that the concept of temporality does not need to be restricted to history only. From the analysis and data presented in the paper we have demonstrated that group narratives engage in power struggle over accounts regarding the future of their organizations. Thus, like construction of history of an organization in a narrative is hegemonic, so is the construction of the future of an organization. Thus, the concept of temporality could be used in broader terms.

From practitioners’ perspective, our study provides an alternative method of analysing changing power dynamics in the channels. Awareness regarding changing power relationships in the channel through a narrative lens could provide a well informed analysis of a situation, and could warrant a deliberate intervention by any of the channel members. For example, in the case presented in this paper, the manufacturer might not be comfortable with the distributors’ narrative of Despair. As the manufacturer is engaged in business with both MM, and the distributors’ a gloomy group narrative constructed by either of these channel members could affect the sales of the manufacturer. Thus, the manufacturer might want to construct a group narrative which could attempt to change the narrative of the distributors from narrative of Despair to a narrative having a positive outlook.

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ASB 2010
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ONCE UPON A TIME: DEVELOPING A DOCTORAL PROGRAM THROUGH STORIES OF PLAUSIBILITY

Succeeding in the world of doctoral-level graduate school requires students to create plausible situations out of the chaos surrounding them. Through a set of stories elicited from members of a doctoral program we have shown how telling stories can mitigate the chaos and work towards the development and perpetuation of the doctoral program itself.

Introduction

As we all do with new experiences, graduate students enter their PhD program with expectations of how the next several years of their lives will unfold. These expectations, however, are rarely accurate as the view of graduate school from the outside can never prepare someone for the reality of it on the inside. Successfully navigating the waters of graduate school, at times clear and flowing, at others murky and turbulent, requires students to continually adjust their understanding of their lives in light of this new experience. The differences between what was expected and what actually occurs, and the periods of time spent trying to understand how to function effectively in a seemingly chaotic environment, opens students up to explicitly engaging in both immediate and retrospective sensemaking (Weick et al., 2005). The major transitions of entering graduate school, and each stage along the way through coursework, comprehensive exams, and dissertation research, require students to renegotiate their role and identity in the broader context of their lives on an ongoing basis. This renegotiation gives students cause to look for both reasons and ways to remain in the organization and to achieve success.

As a group of current and recently defended doctoral candidates, we are all still immersed in the world of graduate school. We have come far enough through the process to be able to see where we have imposed plausibility on chaos, but we still have expectations to adjust and our doctoral school experience as a whole to understand. In a desire to gain a greater understanding of what exactly has happened in the past four years of our lives, and to explore further the theory and practical use of sensemaking, we have undertaken this study. In looking at our interest in our experience, the graduate school as an organization, and sensemaking as a methodology, our strongest realization was that the telling of stories has been key to our navigation of the doctoral school journey. One of the reasons we embarked on this paper is because of the storytelling tradition within our doctoral program. Each year of the program begins with a group session where upper year students share stories of their experiences. Students are 'inducted' into the program through the first year introductory storytelling session. It is common for people to craft stories about events in their lives where real events contravene predetermined expectations (Riessman, 1993), and we started seeking out and telling stories at the very outset of our PhD program. Using our doctoral school experience as context, we explore the role of stories in sensemaking.

At the same time as we were, and still are, using stories to create plausible situations out of the chaos surrounding us, we became part of a group of people, an organization if you will, who were all telling and receiving stories. We listened to stories from upper year students to understand how the organization functioned and how we would find our place in it. We told stories to people throughout the organization to help us find our places, to show that we had found our places, and to help others find their places. A PhD program is a loose organization, with a constant flow of people through its boundaries and a small amount of formal structure around it. The intensity of the experience, however, belies the loose structure, and the stories that are told to cope with the intensity are told often enough that they play a large role in developing and perpetuating the organization itself. It is our intent, through this paper, to show how a group of doctoral students and graduates have built an organization through the stories they have told in order to function effectively within that same organization.

Theoretical Foundations

Making Sense of the Experience Through Stories

We contend that doctoral school is an organizational setting where confusion, rupture, and change occurs for students, and so it is reasonable to conclude that they will respond to this situation by trying to bring order to this new environment. This organizing process may be attempted through labeling and categorizing the disorganized and seemingly unmanageable flow of experience until things begin to make sense. The organizational literature is filled with examples of people attempting to understand what is, or has been, happening to them during periods of extreme change or crisis (c.f. Kayes, 2004; Stensaker and Falkenberg, 2007; Weick, 1988, 1993). Other research has examined the roles and responsibilities that individuals possess in making sense of organizational crisis, specifically exploring the events leading up to and following the Walkerton contaminated water crisis (Mullen et al., 2006).

By sensemaking we refer to the construct of interpreting, reflecting upon, and making meaning out of events in a process popularized in the literature by, and so often attributed to, Karl Weick (Brown et al., 2008). Our hesitation in labeling students' actions of making sense as sensemaking arises from two observations: first, that graduate school, while stressful, is certainly not a crisis; second, that it seems all too easy to label as sensemaking the actions of trying to bring order and understanding to a new environment. Our hesitation is somewhat reduced by noting that scholars have also used the sensemaking construct during non-crisis 'normal' times (Brown and Jones, 2000; McCabe and Dutton, 1993; Oliver and Roos, 2003). To convince ourselves that sensemaking is what is really going on in graduate school, we rely upon a cogent exploration of the sensemaking construct by Brown et al. (2008).

At the core of sensemaking is the interpretivist notion of realities that are socially constructed, in which individuals create and give meaning to their worlds through negotiated acts of communication between group members. In essence, sensemaking begins with individuals asking 'what is going on?' when they are experiencing something new, confusing, or complex. There is a consensus in understanding that emerges based upon intersubjective processes (Brown et al., 2008), where meanings converge as individuals continually interpret past events and piece together what has happened. This is referred to as enactment, or the process through which individuals act within social environments in order to create their organizational reality (Weick, 1995). In the case of graduate students, we are suggesting that students attempt to make sense through a crafting of order and rationality by drawing on retrospective cues from their social and contextual experiences. This in turn acts towards both stabilizing, and increasing resilience to, recent and ongoing experiences. The corollary is that there can be divergent opinion in sensemaking. If group meaning is ultimately the pooled, negotiated result of the creation of meaning by individuals, we can imagine a situation where not everyone will agree on what is happening

or has happened (Brown et al., 2008). We refrain for a moment from the temptation of labeling these tales as stories or narratives, and instead draw attention to one aspect of sensemaking important for our research: whether convergent or divergent, what appears to be common to sensemaking is the act of telling a tale. The connection between telling tales and sensemaking seems natural, as Weick (2005) declares sensemaking to be an ‘issue of language, talk, and communication’ (409). However, the description of the retrospective, reflective aspects of sensemaking in the literature uses the terms narrative and storytelling interchangeably. One of the leading story and narrative scholars claims that there is a difference between the two tale-telling descriptors (Boje, 2008). This is in contrast to Brown et al. (2008) who, after reviewing the sensemaking literature, assert that there is no difference between storytelling and narrative. Therefore, since our study places emphasis on the act of storytelling and sensemaking, we pause here to clarify the way we are approaching “stories.”

According to Boje (2008), the distinction between narrative and story is that narrative aims for retrospective coherence while story attempts to unfreeze the present and introduce more possibilities for the future. Regarding narrative, Boje (2008) argues that when considering the same past event as experienced by different people, each individual may choose to order their telling of the past in different ways. All will attempt to make a coherent, believable story but each will draw together different parts of the context to suit their own peculiar objectives. Boje (2008) uses the example of firing an employee to illustrate: ‘...if I see myself as kind, I may narrate my act of firing an employee as helping them to move on to a job better suited to them...’ (5). Clearly, the manager who sees himself as tough and efficient will narrate the event in different ways. In general terms, then, a narrative is about control. It is a retrospective telling with a beginning, middle, and end used to convey information about who the person is, who the person should be, and to whom the person relates (Boje, 2008). In contrast, story is about what Boje (2008) calls the emergent present. One can arrive at an understanding of how it differs from narrative by imagining a large organization, dispersed over space, where there is incomplete knowledge and communication of everything that is happening. In telling the story of the present, no storyteller can be in each room of the organization listening, controlling outcomes, and leaving only one path. Instead, those listening to the story bring with them their own contexts and use their imagination in a process of co-construction (Boje, 2008). This is what Boje (2008) calls an ‘emergent assemblage sensemaking’ (7).

We must admit that the study of stories, and storytelling, within organizations is not based on a common understanding of what, exactly, a story is (Bird, 2007; Boje, 1991; Hyde, 2008; Rindfleish et al., 2009; Whittle et al., 2009). Stories as a unit of analysis run the gamut from small conversational snippets within a larger narrative to precisely defined interactions containing particular characteristics. Boje (1991) used ‘an exchange between two or more persons during which a past or anticipated experience was being referenced, recounted, interpreted, or challenged’ (p.111) as an operational definition of a storytelling performance. Boje’s loose definition of a story offers flexibility in what a story is, opening up a greater number of interactions for analysis. Likewise, the idea of small stories, tellings of ongoing, future, hypothetical, and shared events that emerge through conversation, put the focus on everyday happenings as immediately experienced by the tellers and the audience, rather than on crafted and scripted monologues of lived experiences (Georgakopoulou, 2006).

Gabriel (2000), on the other hand, works with a more precise and stringently defined concept of a story. Stories have particular features and form, including characters that elicit an emotional response, and plots that contain conflict, trials, and choices that require action and decisions. Stories sometimes sacrifice accuracy for effect, but it is that effect on the listener that gives stories their power and their longevity. For this study we have used Boje’s (1991) loose definition of a story. We are interested in the recounting of past experiences, without putting pressure on our story-tellers to highly structure those experiences with conflict, trial, and choices.

A common characteristic of stories is that both the storyteller and the listener are involved in the experience. As listeners we fill in gaps in the stories based on our own experiences, we prompt and direct the teller with head nods, position changes, and exclamations (Boje, 1991), and the very story that is told is often told in reaction to who we are as listeners (Hyde, 2008). A story as told by a narrator cannot be disconnected from the context in which the story itself occurred, and in which the story is being told (Hyde, 2008). Stories change based on their narrator and their audience, and the entire, complete story is never told. One historical event can elicit a multitude of alternative stories, dependent on who is telling the story and the reasons for it being told (Boje, 1991). Within the study and analysis of stories, as is being done in this paper, we as researchers also bring our own motives into play when retelling stories to you, the reader. A graduate student, when asked for a story, will have different reasons and interpretations for their story than we, as researchers, will have when we choose which stories to analyze in depth. The choice of story to be told, distinct from the contents of the story, can tell us much about what the graduate student is experiencing. Regardless of the specific actions and outcomes of the story, a student who chooses to tell a story about their family when asked to discuss the stress involved in pursuing a PhD indicates that their doctoral experience is tightly tied to their family life.

The content of the story can also indicate how the teller is making sense of an experience. Some sections of a story will be abbreviated, either glossed over or replaced with a terse story such as 'it's the same old story,' while others will be accentuated. The accentuated parts tell us what the storyteller is either trying to make sense of, or is purposely choosing to share with us (Boje, 1991). Shared experiences between storytellers and their audience can lead to greater amounts of glossing over and terse stories, as there is an expectation that the audience understands most facets of the experience. When telling stories to researchers, storytellers will tell their stories in more complete detail as the researchers are generally outside of the collective, or organization, in which the stories reside. Where we, as researchers, are members of the organization of graduate students we would expect to encounter more glossing over and terse stories than the norm. While in some ways this will help our analysis, as what the graduate students perceive to be the key points will be accentuated, we also need to be aware of, and analyze, the terse stories in order to develop an understanding of the graduate student experience that can be fully appreciated by those outside of academia.

Organizations as Stories

Through the very process of telling our own stories to others, we change our individual and group identities (Bird, 2007; Rindfleish et al., 2009). Within a network, a group, or an organization, collectively constructed stories help in unification, as they contribute to a shared understanding of both the past and the way in which the group as a whole can move forward (Bird, 2007). Old stories can be used in times when new decisions need to be made, in the hope of avoiding bad decisions and repeating successes. Stories told within organizations also act as ways of creating and retaining a collective memory that includes facets of the individual memories of the members of the organization (Boje, 1991). Storytelling within organizations is an important means to pass on experience and knowledge (Ferneley, 2009) and situating oneself within the story contributes to making the experience plausible (Weick 1993). As we tell stories through the process of sensemaking, an individual act of creating rationality, our stories mingle, merge, and struggle with the stories of others in the organization. These stories, and story interpretations, become the the organization (Boje, 1995).

Methodology and Context

Over a period of seven weeks, focused short stories were collected from 13 of a possible 44 past and current doctoral students spanning seven distinct class cohorts within one Canadian business school. The stories centered on the experiences of joining a doctoral program, commencing studies, working

within a cohort of peers and coming to an understanding of what it means to become a PhD student. These stories were gathered in written format from the participants, using a series of questions as guides. Of five open-ended questions presented to participants (Why did you choose to become a PhD student? Who were some of the key players in your PhD journey? At what point in time did you feel you were truly a PhD student? Could you describe the key events or transition moments that you experienced within your PhD cohort? Could you tell me about one important success you have had as a PhD student?), respondents were asked to address two or three. Some answered as many as five. Responses were an average of 700 words in length. Written stories provided some key benefits, including continuity in data collection regardless of geographic location and the freedom of respondents to craft their stories asynchronously, both factors contributing to an increase in responses. Additionally, the respondents should feel a greater sense of anonymity, having the ability to choose language that masked identities of themselves and those within their stories. The questions posed to respondents were provided as guides in the story construction process. Written responses without the synchronous interaction of the researcher removed the possibility of leading answers to areas deemed important to the researchers a priori.

This study is based on a case study of one school and program due primarily to the unique nature of the PhD program at this Canadian business school. The students in this program have an average age of 38, with almost all coming to the program with an established career in a field outside of academia. Most brought some teaching experience to the program and many had extensive family obligations, including spouses and children. As a fulltime program designed to accommodate working professionals, there are two separate two-month residential sessions encapsulating six of the eight courses, three in each consecutive summer session. Completing three doctoral level courses in a condensed delivery model is an extremely intensive and stressful endeavor, adding to the existing stressors of family obligations, work commitments, and for many, physical separation from personal support networks. Due to the significant amounts of time spent together both in class and outside, class cohorts then become focal points of shared experiences and interpersonal interactions.

The study itself was triggered, in part, by the first successful dissertation defense and subsequent graduation of one of our cohort members. In passing such a huge milestone, as both individuals and a group, we felt the need to understand how we had made it this far. All authors of this paper shared characteristics with the respondent group, as they are all recent or current students within the PhD program at this business school and members of the same class cohort. Each author contributed to the data for this study, providing written stories of their individual experiences around the topics within the open-ended questions. One member of the research team served as the data collector, removing identifying contributor characteristics from the provided information and distributing the anonymized data amongst the team for analysis. As both authors and participants, we engaged in sensemaking while recounting our stories as well as during the data analysis phase of the study. The analysis of respondent stories was undertaken by four of the five authors. Each story was reviewed multiple times as the researchers looked for emerging stories, shared or divergent themes, and common stories. Individual results were then combined into a whole, and further analysis was undertaken to refine the resulting set of common stories.

Results and Discussion

The doctoral program under study falls well into Weick's concept of a minimal organization, as members of the program have no prior contact before coming together, do not have a clear understanding about the experiences within the program, and spend short, intense periods together in a common set of activities. These types of organizations spend a great deal of time undergoing sensemaking activities as they are highly susceptible to sense confusion through 'events that are inconceivable ...hidden ...or incomprehensible' (Weick, 1993: 33). Many factors contribute to the organization's tenuous state, including the annual entrance of new students, the continual completion and departure of existing

students, the solitary nature of pursuing a PhD once coursework is completed, the fact that faculty often has a stronger affiliation to their respective departments and disciplines within the larger university setting, and in our particular case the fact that students retain membership in their employing organizations. Organization members demonstrate a great need to resist the pressures that pull the organization apart and in so doing they turn to storytelling.

As students within this PhD program are receivers, creators, and disseminators of stories about experiences within the program, experiences that either belonged to them or to others, we explore the idea of the program being perpetuated through stories. Data, in the form of stories, was analysed looking specifically for stories that participants held in common. In some cases, the same stories were told by multiple participants, be they individuals who had experienced the event that led to the story, or individuals who had been told the story by others. In other cases, stories were told about experiences which all participants shared, such as starting the PhD program or struggling with feelings of inadequacy, but which were experienced in different ways.

We have uncovered a set of common stories that emerged from the individual stories told by the participants, and we present these stories as ways through which the PhD program, the organization in question, is perpetuated. A series of shared themes emerged throughout the analysis of the data, including initial fear and questioning, a sense of arrival, various notions of camaraderie, rites of passage, and the need for support. These stories serve as a vehicle for both the storytellers and their listeners to understand the incomprehensible world of a PhD program, turning the nonsensical environment into the plausible in which they could function. As students went about making sense of their academic journey and environment, the stories that resulted gave them a shared understanding and reduced the confusion within the minimal organization.

Why I'm Here

The doctoral student experience does not start on the first day of classes, nor upon acceptance into the program, but with the decision to apply for a position. While many graduate students choose to pursue a PhD as the next logical step of their academic journey, students in business doctoral programs are often returning to academia from a number of years in the workforce. All of our thirteen study participants had been in the workforce for anywhere from two to twenty years before deciding to pursue a PhD. The stories of why doctoral students have chosen to pursue a PhD obviously differ among participants, but the telling of the story itself is common for all students. 'Why are you here?' is a commonly asked question among program members, and is an important question for both the initial introduction and relationship-building phases of the program.

'Why I'm here' stories include stories about being unhappy in careers and looking for something new, being happy in careers but requiring a PhD to continue, and being drawn by the rewards of completing a PhD. Some stories are simple and direct, appearing to show that, in fact, the decision to pursue a PhD was an instrumental next step in the participants' lives.

Prior to becoming a PhD student, I had had the opportunity to teach at the instructor level in the university environment. This was an experience that I enjoyed immensely. To continue in this area, however, I was required to obtain a PhD. The choice then was clear – if I wanted to teach in a university I would have to go back to school. (P1)

I chose to [pursue a PhD] because I have to in order to retain my current university employment. My university tends to (out of necessity) hire non-terminally qualified lecturers, some of whom catch the bug and desire to make a career out of it. I am one of these people. (P13)

Other stories, however, show the complex set of reasons for which some of the participants chose to leave their established careers and, essentially, start again in the field of academia.

I chose to become a PhD student for four reasons. First, I had a lot of work experiences that I wanted to process somehow... there were very few people in Canada who had doctorates doing research in my field... I could capitalize on an area of research that few people were exploiting. Second, my job wasn't really going anywhere, and I felt very demoralized and insignificant. I had tried a few times to 'get ahead' in my work by doing all the usual stuff ... All of these things ended up resulting in nothing. I was really not in the right place in life. (third) I have spent more time in school than in work, and I've never particularly enjoyed 'working' in the 'real' world. I find that I can see through all the illusions and stereotypes, and I've always had a hard time working for the bottom line or outcome without questioning why. (P2)

The 'why I'm here' stories are formally shared at the first day orientation and again through key seminar events in the first month of the program. These events provide a structured environment in which to tell stories. These stories also continue to be told informally as graduates and students from far geographic distances meet new students at conferences and thesis defenses. As researchers we have consciously interpreted and organized these stories in a way that reflects a retrospective view of the graduate school experience; we have gone back to the beginning of both the personal thought process and the organization experience to arrange these stories because that is what helps us to understand the experience. Interestingly, as we ponder the extreme nature of our experiences as doctoral students, we note that few participants chose to pursue a PhD for the sake of the experience itself. Most participants saw the degree as a means to an end, the end being an academic career. There were a few, however, who addressed process itself, as well as the outcome.

I chose to become a PhD student for a number of reasons. Professionally, I wanted to teach and interact with high level students. ... during my MBA, I recall feeling ripped off when the courses were easy. Personally, I also wanted to test myself at the highest level possible. ... As the first person in my entire family to successfully complete a full high school education, I have found success at each additional step from secondary through each post-secondary level. The dominant question has always been, 'How far can I go?'(P6)

Each of the 'why I'm here' stories exhibit common characteristics: students situate themselves in a former life and they define the boundaries of that life as restrictive or unsatisfying. While so doing, the stories create an expectation that the PhD experience will overcome or eliminate these shortcomings and entering the program sets up a contrast in the student's world. Whether the program succeeds is not as important in these early stories as is the shock and dramatic change that graduate studies presents. The students' stories reflect an intentional change and a resulting shock ensues, from which students have to recreate a role and a life with meaning. As we see in the subsequent stories, participants strive to craft a plausible story of their change.

I Don't Belong! Or Further Shock

Common stories told by first year students include the strong feeling that they have made a terrible mistake and that they do not belong in a PhD program. These stories are also told by upper year students and graduates, as a way to provide guidance and advice for those first year students. Most participants in the study recount a story in which they experienced very strongly that they were not capable of being successful in the doctoral program.

Throughout the first year, I felt very much like an impostor in danger of being found out at any moment. It was a very surreal experience, I was going through the motions, but I don't think I really got it. I first started feeling 'real' around the first week of the second summer. (P12)

As the stress of the program begins to build, and students begin to question why they are there at all, telling their 'why I'm here story' also helps them to remember what it was that drew them towards a PhD and helps to remotivate them. Why I'm here stories are insufficient, however, to calm the chaos of those first months, and so a new story emerges.

When I was accepted into the program, I think the strongest emotion I felt was fear. I was afraid that I wouldn't be good enough, that somehow I had fooled everyone into thinking that I was capable of being a PhD student but that once I started in the classes that the 'imposter' would be exposed. My idea of what a PhD is, was, I believe, unrealistic and housed in this magical, mysterious, and unreachable position of brilliance, stature and wisdom. Before I entered a single classroom, I had this vision of being surrounded by Socrates and Plato and Gallileo and being scorned by them for having the nerve to try to join their ranks. (P5)

Very early in our studies, I was told that, at some point in time, you will realize that you are 'on' the path. Of course, I had no idea what this meant in actuality. During my first year of studies, I felt lost and isolated... In my classes and my time, I always felt behind; never had I read enough, understood enough, and ultimately, wasn't PhD-enough (whatever that was!). (P6)

There are certainly lots of moments where I felt like I was not a successful PhD student. I have found the experience to be ... one which raises a lot of questions of self worth. (P8)

The complete lack of confidence captured in numerous internally-reflexive comments demonstrated how individuals created a plausible scenario for questioning their ability. This is in direct conflict with accurate data, including the past successes of all respondents plus their ability to gain entry into a competitive graduate program. In addition, at this point in the PhD experience, the stories begin to address the other students and faculty surrounding the storytellers, and the stories of others begin to enter into the sensemaking process. There is a phase of comparison to others at first, followed by stories in which students interpret their sense of belonging in ways that have personal meaning for them and are not necessarily imposed by others. This lends credibility to their version of belonging stories, and makes them plausible for the individual teller, as we see, below. It also underscores the notion Boje presents of multiple voices and stories co-constructing the minimal organization that is the PhD program.

Do They Think I'm Good Enough?

In their efforts to fit themselves into the doctoral school environment, participants often relied on external validation as an indication of their progress and/or success. Strong validation seems to come from faculty involved with the program, as students look to them for evaluation and support. This validation starts in the early days of the program, as students question their decision to pursue a PhD, and continues through to the end, as the ultimate validation comes in the form of a PhD awarded by faculty and experts in the student's fields of study. These stories of achieving validation and approbation from faculty are told by students in order to compare effort and reward.

It did feel like I was firmly embedded in the program when I had to defend my thesis proposal to my committee. I felt sort of in charge and on show even though my supervisor was coordinating the event. I think I realized in the most grown up way I have ever realized anything in my life, that these people were gathered here because of me. And more than just me; because of some ideas that I had ... These ideas were different, unique, and other people found them interesting. I

don't know that it made me feel like a student (other than the obvious hierarchy around the table, me being the junior member) as much as it made me feel like a researcher. (P8)

I had not bargained on the incredible boost of self-esteem and self-confidence I have received. Maybe it is like the Wizard of Oz – I feel like the tin man who now believes that she has a brain because someone gave me the paper to prove it!(P11)

Not all participants required external validation. One participant in particular expressed how his acceptance into the PhD program made him a PhD student, and once he had achieved that acceptance he did not look for further validation of his status.

I felt like a PhD student from the outset of the program. It was me that defined what a PhD student felt like, not the outside or other people. But, the moment I was accepted to the program was the moment that I started feeling like a student. (P2)

In another case, the student described numerous sources of information for validation, but does not find any of them helpful in situating herself in the program. Her story began with a process focus 'A PhD would allow me to take my education in the direction that I wanted' and then became ends-driven as she used her story to situate herself in the program in hindsight.

It seems a bit funny to reflect on this now, but I think I felt most like a PhD student when I applied - in that period when I was waiting to be accepted. At that point no one ... had passed any judgement on me yet. Of course once I joined the program, I was subjected to all kinds of different versions of what a PhD student looked like and 'should' be. I am not sure I have ever really felt like any of those! ...there is no single definition of PhD student...I am left knowing that all that really matters is finishing, and getting the degree. (P8)

Hey, I am a PhD Student After All: Enacting the Organization

As all study participants had, at the point of the study, either graduated or were still in the program, the stories of feeling like they did not belong had counterpoint stories in which students recounted those events or experiences that led them to believe that they did, actually, belong. Some of these stories are also 'do they think I'm good enough?' stories, as the validation and approbation received from faculty led to their feelings of actually being PhD students. In other cases, students came to the realization based on their growing comfort with the program and the content, and their increasing awareness that their fellow students were experiencing, or had experienced, the same doubts.

When I returned for my second year of studies, I found that I had indeed learned quite a bit. I was able to help some of the newer students move through the exact same feelings as I had just one year earlier, as those ahead of me had done. I didn't know it all; in fact, I knew very little. But I realized that most people within the program knew a little but tending to act as if they knew more than they did, hiding behind jargon and nonsense. ... It was at that point that I began to feel like a PhD student and that I was 'on' the path. (P6)

I guess that I truly started to feel like a PhD student when I realized that the other people in the program, including the faculty members, were just like me. That they were intelligent and accomplished, but real people with real lives and their own insecurities. (P5)

I recall an 'uh oh, I'm not in Kansas anymore' feeling when reading the pre-assigned texts before classes started, with a dictionary at close reach (I've never taken a sociology course in my life before). I remember realizing that stuff I wrote and thought was 'research' prior to the course-

based lessons was a weak facsimile at best. I remember a ‘lightbulb’ feeling as I increasingly became aware of other ways of viewing the social world... and hence had a new vocabulary for making sense of things. I remember feelings of satisfaction after making useful contributions to class discussions and ... leading seminars. (P13)

Up to this point in the storytelling, students have been assessing themselves against a given organization setting. They find their identities and abilities challenged. The ‘hey I am a PhD student after all’ stories mark a watershed wherein the storytellers begin to craft an organization of their own making, and use the stories to influence the overall group and the groups that follow then in subsequent years.

My Cohort, My Friends (or Not)

The intensive nature of the program under study and its single annual intake leads to highly defined cohort units. Over the history of the program, some cohorts have quickly bonded into solid units that provided friendship and support for their cohort members. Other cohorts have had friendships form within them, without a strong bonding as an entire unit, and yet others have struggled with intense competition, internal fighting, and animosity. Regardless of the tenor of the relationships within individual cohorts, their importance to the overall PhD experience can be seen by the fact that all participants included cohort stories in their answers to the question asking about the key players in their PhD journey. Stories of cohorts were told by individuals about their own cohort experiences, and also by individuals who were recounting either firsthand experiences of the dynamics of other cohorts, or else cohort stories that had been passed down as part of the lore of the program.

First, there would be my cohort members. I had some great personal struggles throughout the program and without such a supportive and wonderful group of people I would not have stayed. They encouraged me, argued with me and helped better me as a person and as a student. This group of people came from very different backgrounds but that did not matter. We never had to agree with each other’s opinions, but we did respect them. The level of debate that we achieved without offence to one another was tremendous. We were open to one another. These individuals have truly become four of the most important people in my life. I would say they are my family.(P1)

Once, I sat in on a class of one cohort and the tension in the room was overwhelming. People were talking over one another and making personal attacks. I came to find out that this was not unlike the class to do this type of thing. People would make agreements with one another and purposely keep it to make the individual look better. As an example – the group agreed to not use PowerPoint for one class and then when they got to the class the person that suggested it actually had a PowerPoint. ...I have heard stories of actually screaming matches among students. That people would request a move of office to be able to get away from other students. This never was the case with our group. Did we get on each other’s nerves sometimes, yes, but you just worked through it.(P1)

I Need Help

Support networks were key for participants in navigating their doctoral education. Within the doctoral program itself, participants told stories about the strong levels of support that they received from their cohorts or fellow students from other years, and from faculty. In many cases, the cohort provided an exceptionally strong support system for participants, but where cohort bonding did not occur and as students moved past the intensive coursework stage, participants still found support networks internal to the program.

Once courses ended and our cohort dispersed, both geographically and academically... others in the PhD program joined my support network. I had excellent support throughout comprehensive exams from upper year students, and I had a thesis support network with students who were in the same stages of the dissertation as I was. My advisor and other faculty members also became integral to both getting my dissertation done, and learning how to become a faculty member, in terms of publishing, conferences, research, and finding jobs. (P7)

I really did feel like my thesis had emerged as the result of a lot of support from my professors, supervisor, committee, cohort and other PhD students from various cohorts who helped me. For example, I attended a 'coffee club' for two years during my thesis writing made up of students interested in discourse analysis. This little group did mock defenses with me, and each other member, before our defenses. We also read each other's work and gave feedback. And, just as importantly, drank coffee together once a week and talked about our work, plans, dreams, challenges, etc. (P4)

A number of respondents mention directly that they do not believe they could have successfully navigated the program without the support of their cohort. The cohort provided an in-group experience that was 'supportive and wonderful,' a group that knew 'exactly what I was dealing with.' Some cohort members also spoke of out-group experiences, when 'we also seemed to feel a little left out of the main body of the PhD program.' Pseudo-sibling relationships also appeared, with students farther on the journey telling old stories and providing materials and support to others as those who have been there already. Departure from the cohort family created moments of 'little death through having to all leave to go back to our regular lives.'

Conclusion

The minimal nature of the PhD program as an organization and the marked departure from daily life represented by graduate studies reflect conditions where sensemaking is necessary for survival, as Weick (1993) points out when he states 'sensemaking is...built out of vague questions, muddy answers, and negotiated agreements that attempt to reduce confusion' (636). Weick goes on to say that sensemaking as a tool for analysis can help to explain why organizations fall apart. In this study we have shown that storytelling, as a sensemaking device, can also achieve the opposite: it can hold a tenuous organization together. The continuity of the program as a meaningful organization is at real risk when the members disperse each summer. Members of the organization remain attached to it after the two summers of residency, however only at a distance, and they move away from group learning to independent research. Even the faculty teaching in the program change from year to year. In order to maintain an organization for returning and continuing students, the doctoral program must resist flying apart and has a need to perpetuate itself through a body of stories and a culture of storytelling that endures from one year to the next. The data collected in this study shows the importance of stories for both overcoming chaos and creating a plausible organization for its individual members.

The results of our analysis show that there is no doubt that key moments, delivered to us by way of stories, help students to make sense of the PhD experience and to situate ourselves in it. We can also see, through the stories, how the organization has changed over its ten years in existence. The impact of the cohort is felt directly in the content of the stories and also in a temporal sense. Earlier cohorts, without the benefit of repeated storytelling orientations, and with fewer students to generate stories, do not talk about their cohort as much as later years and do not place the cohort at the centre of their storytelling. Many later cohorts tell stories with the cohort as the fulcrum of the graduate school experience, whether such stories reflect support or conflict.

While participants were directed in the stories they told by the specific questions posed, the questions were broad in nature and were designed to allow participants to select stories that held particular resonance. The stories that were sent to us are of import to the people who told them, and through their telling we can gain an understanding of those doctoral school experiences that were, and have remained, vivid and which, in turn, shape the organization through their telling. Our small study of a single doctoral program adds to our greater understanding of the value of stories to both the success of individual doctoral students, and to the successful development of a doctoral program as a whole.

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ASB 2010
Halifax, Nova Scotia

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MEANING IN WORK: AN EXISTENTIAL CRITIQUE OF THE DISCOURSE OF CALLINGS

This paper is a critique of the discourse of work that is being indirectly promoted by the Job-Career-Calling model and the Spirituality in the Workplace field as they both encourage meaning in life to be found through one's work, i.e., through finding one's Calling. Using existential philosophy I argue that this "Calling" discourse is problematic as it situates work as the primary source of meaning for human existence. Although this may be appropriate for some people, for others it results in the inauthentic life.

Introduction

Reflecting on the meaning of life may be spurred by psychological crisis but it may also arise from an acute awareness that Henry David Thoreau was correct: most people do lead lives of quiet desperation. (Bellioti, 2001: 10)

The Job-Career-Calling model and the Spirituality in the Workplace field are both implicitly promoting the importance of work in Western society, i.e., that meaning is found through one's work. They imply that viewing work as a calling is preferable to work as a career and especially a job (Freed, 2003; Wrzesniewski, 2002; Wrzesniewski et al., 1997). As a result of work being privileged in this way people are being encouraged to find work that they view as a Calling in life. It is no longer sufficient to have work that is viewed as a job or even as a career. People are expected to make their work the main source of meaning in life, and to believe that fulfillment in life is directly dependent on their work life. However, does viewing work as "only" a job preclude a meaningful life? Is a career or calling necessary in order for the individual to view his or her work life as meaningful? Does the person who views work as *only* a job have a greater challenge in living a meaningful life than people who view work as a career or calling? Or, is it the opposite, that in fact other (non-work) avenues of life present a greater opportunity for fulfilling needs that lead to a more meaningful life? These questions will be explored in this paper.

One way to analyze how an individual makes choices and understands his or her work life in the quest for meaning is through existential philosophy. Existential philosophy provides compelling insights into the nature of the individual self, the circumstances and dilemmas of everyday life, and in particular, it gives us a way to view the creation of individual meaning, i.e., the *authentic life* in existential terms. It has been described as a way to interpret the predicament or dilemma of people in modern Western society and the resulting anxiety and anguish (Collins, 1952; May, 1959). Golomb (1995: 200) notes, "the existential question today is not whether to be or not to be, but how one can become what one truly is." Existentialism focuses on creation of the self, argues that human meaning is a subjective experience, and emphasizes that the goal of human existence is the meaningful or authentic life, specific to the individual. The starting point for an existential approach is the recognition that the human self is "the true center of philosophy and... the sole legitimating authority" (Lavine, 1984: 326). The existential self, as opposed to the 'psychological' self, is not pre-determined but continually being constituted by how the individual experiences the world and reflects upon those experiences (Kierkegaard, 1980). The self, therefore, is "one whereby my personal history is very much a product of my current 'situation,' and how I construct

my self and pursue that self that I am not yet” (Earnshaw, 2006: 124). The goal of life from an existential perspective is that the individual freely and consciously chooses his or her life.

In this paper I will argue that the discourse of privileging work that is implicitly being encouraged by the Job-Career-Calling model and many scholars in the spirituality in the workplace field is problematic from an existential perspective in that: (1) There is now a growing societal pressure on people to make work their primary source of meaning in life which is contrary to the individual freely and consciously choosing his or her life, and; (2) For many people, an emphasis on work may not be the path to the Authentic life as they may be ignoring other elements of life. Despite the importance of work in Western society, it is only one aspect of a person’s existence among many pieces, which ultimately must fit coherently together in order for one to feel that his or her life is meaningful.

The Job-Career-Calling Model

The Job-Career-Calling model provides a practical method to investigate the importance of work in a life with its three distinct categories. The model was introduced in the classic book, *Habits of the Heart* (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985), which was an in-depth look at how life was being lived in the United States. Bellah et al (1985) argued that people were oriented to their work in three distinct ways, as a Job, as a Career, or as a Calling. They defined a Job as “work as a way of making money and making a living...supports a self defined by economic success, security and all that money can buy,” a Career as work that “traces one’s progress through life by achievement and advancement in an occupation...yields a self defined by a broader sense of success, which takes in social standing and prestige, and by a sense of expanding power and competency that renders work itself a source of self-esteem,” and a Calling as work that “constitutes a practical ideal of activity and character that makes a person’s work morally inseparable from his or her life...links a person to the larger community...a crucial link between the individual and the public good (Bellah et al., 1985: 66). Therefore, a person with a Job orientation views work primarily as a means for economic gain, a Career orientation as a development path, and a Calling orientation as purpose in life and work that the individual would engage in even if he or she had no financial need for work (Bellah et al., 1985). The Job-Career-Calling categorization can be thought of as a continuum of personal investment with a Job orientation placed at one end, a Career orientation in the middle, and a Calling orientation at the far end (Wrzesniewski, 1999).

Job Orientation	Career Orientation	Calling Orientation
Low personal investment		High personal investment

In a Job orientation, work represents the minimal personal investment whereas this is highest at the Calling orientation end of the continuum. People with a Job orientation view work as primarily “financial necessity” and typically they are counting the days until retirement with the belief that at that point they will be free to do what they really want to do in life. A Career orientation lies in the middle of the continuum as it involves a greater investment for the individual than a Job but less than a Calling. “The notion of a ‘career’ implies an organizational ladder to be climbed, but it also stands for an institutionalized life path and a series of choice processes” (Moen, 1998: 41). People with a Calling orientation to work do not separate their work from the rest of their life as people can do with a Job or Career orientation; a Calling *is* their life.

Historically, a career has been considered as work that is desirable, i.e., people are encouraged to seek out a career and not view their work as only a means of financial gain (Collin & Young, 2000). However, in recent years careers have been replaced in importance by callings and people are now being encouraged to “find their calling” (Duffy & Sedlacek, 2007; Novak, 1996). Callings were originally related to religious endeavors, i.e., “called by God,” and examples include Mother Theresa and Billy

Graham (Delbecq, 2004; Weiss, Skelley, Haughey, & Hall, 2004). Sometimes the term Calling is used interchangeably with vocation while others differentiate between the two with calling being defined as an “external” call, i.e., outside the self, and vocation being defined as an “internal” call (Dik & Duffy, 2009). “A calling is a transcendent summons, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating a sense of purpose or meaningfulness and that holds other-oriented values and goals as primary sources of motivation” (Dik & Duffy, 2009: 427). Callings have also been associated with work that serves the greater good of society (Wrzesniewski, McCauley, & Rozin, 1997). From a secular point of view, callings are usually identified by asking people what they would do with their lives if they did not have the financial need to work.

Whereas the Job-Career-Calling model was originally suggested in 1985, research on the model itself began in 1997 and the primary researcher to date has been Amy Wrzesniewski of New York University (Wrzesniewski, 1999, 2002; Wrzesniewski & Dutton, 2001; Wrzesniewski, Dutton, & Debebe, 2003; Wrzesniewski et al., 1997; Wrzesniewski & Tosti, 2006).

Wrzesniewski, McCauley, Rozin and Schwartz (1997) investigated the Job-Career-Calling model by surveying 196 university employees and found considerable empirical support for the distinction between the three orientations. They also found that work orientation was not occupation dependent, i.e., within the same occupation you could find people who viewed the same work as a job, career or calling. The work itself does not necessarily matter, only how it is regarded by the individual. For example, working as a police officer may be a Job for one person, for another it is a Career and for others still, a Calling. “Satisfaction with life and work may be more dependent on how an employee sees his or her work than on income or occupational prestige” (Wrzesniewski et al., 1997: 31). Lastly, they claim that the same work can start as a career or even a calling but over time turn into just a job. The new nurse may at first see his or her work as a calling but this may change significantly over time and later in life consider the same profession as a job.

We believe that we have demonstrated that it is easy for most people to assign themselves to one of the three Job, Career, or Calling dimensions, based on degree of agreement with three paragraphs representing the three work-relations. The differentiation of the three orientations was clearer and easier than we had anticipated. In accord with our predictions, we presented evidence indicating highest life and work satisfaction for respondents who see their work as a Calling – even when income, education, and occupation are at least roughly controlled (the administrative assistants). (Wrzesniewski et al., 1997: 30-31)

In her Ph.D. dissertation on the Job-Career-Calling model and job loss, Wrzesniewski (1999) found that work orientation influences behaviours after suffering a job loss. She also reported a relationship between age and work orientation. Her results indicate that younger job seekers were more oriented towards a career while older job seekers had stronger orientations towards callings.

Preliminary research implies that the most contented and therefore productive people are those who see their work as a calling (De Klerk, 2005; Wrzesniewski et al., 1997; Wrzesniewski & Tosti, 2006). “Calling-oriented individuals report higher job and life satisfaction, even after controlling for income, level of education, and occupation, than people who view their work as jobs or careers. These employees also report higher work motivation and are less likely to regret their choice of occupations” (Wrzesniewski & Tosti, 2006: 74).

Freed (2003) investigated the relationship between the three orientations and job satisfaction, and found support that people with a Job orientation were least satisfied with their work, people with a Calling orientation were most satisfied, and that people with a Career orientation were in the middle. Other research has proposed that having a calling is connected with being perceived as a “success” in life

(Heslin, 2005). It has also been suggested that people may be able to “re-craft” i.e., reframe their conception of their work, and change their view in order to find greater meaning in it (Parry, 2006; Wrzesniewski & Dutton, 2001). For example, if a hospital cleaner could connect his or her work to the greater purpose of helping others, then the work could be viewed as a calling instead of a job and result in greater meaning for the individual.

Banaga (2000) analyzed the interviews of sixteen people between the ages of 38 and 78 to investigate why people may view their work as a calling. The results indicated that callings are related to contribution and concern for others, and usually aligned with one’s faith. “The results of my study show that spirituality and religion can have a significant influence in the experience of work” (Banaga, 2000: 218). Duffy and Sedlacek (2007) surveyed 3091 first-year university students using a 20-item scale to investigate the presence of or search for a calling. They concluded that, “students searching for a calling and those who obtain a calling are at very different points in their career development, and that the process to find a career calling may take a considerable amount of time...it may not be until some students feel a calling that they truly understand the importance of work in their lives” (Duffy & Sedlacek, 2007: 598). In a review of the literature on Callings, Dik and Duffy (2009) hypothesize that finding a calling may be related to the influence of family and critical events in a person’s life, e.g., disasters such as the 9/11 attacks, or a more personal one such as a parent dying of cancer. They call for more research into the origins of callings and how ‘finding your calling’ might be encouraged in people (Dik & Duffy, 2009). This call has been echoed simultaneously by the Spirituality in the Workplace movement.

Spirituality in the Workplace

...as a context for human development, work activities provide a venue for becoming more than one used to be. In and through work, individuals develop themselves by expressing the occupational interests, vocational talents, and work values that move them from a felt negative to the perceived plus. This progressive development constitutes a spiritual quest for meaning and self-completion that, in the process, helps people become someone they want to be, a person they themselves would like. (Savickas, 1994: 5)

The “Spirituality in the Workplace” movement has added a new voice to the meaning in work discussion for academics and lay people since it emerged in the mid-1990s and has developed as a field quickly over the past decade (Bell & Taylor, 2004; Dalton, 2001; Elmes & Smith, 2001; Fox, 2003; Garcia-Zamor, 2003; Gibbons, 2000; Harrington, Preziosi, & Gooden, 2001; Howard, 2002; Lips-Wiersma, 2002a, b; McCormick, 1994; Mitroff & Denton, 1999b; Ottaway, 2003; Tischler, 1999). However it is viewed from a variety of perspectives and subsequently defined in many ways. Some scholars regard it from a religious perspective, i.e., bringing God into work practices, while others view it from a secular perspective. “Spirituality at work is not about religious beliefs...it is about people who perceive themselves as spirited beings, whose spirit needs energizing at work. It is about experiencing real purpose and meaning in their work beyond paychecks and task performance” (Harrington, Preziosi, & Gooden, 2001: 155). Dalton (2001: 18) comments that “it is possible to speak of spirituality as a universal human activity because life is filled with experiences that drive us to question and seek answers on the meaning and purpose of existence.” Mitroff and Denton (1999b: 83) define spirituality “as the basic feeling of being connected with one’s complete self, others, and the entire universe.” No matter how it is defined it is clear that spirituality in the workplace is an attempt to bridge the gap between work and the overall pursuit of a meaningful life.

We each need to find meaning and purpose and develop our potential, to live an integrated life. Spirituality encompasses the way an individual lives out his or her sense of interconnectedness with the world through an ability to tap into deep resources...

spirituality is both highly individual and intensely personal, as well as inclusive and universal (Howard, 2002: 231).

The interest in spirituality and work has been linked back to the 1960s, when people were rebelling against many institutions and looking for different life experiences (Tischler, 1999). It has been connected to the 1980's and the "generation of wealth" as people were making increased salaries but were still not happy with their lives (Garcia-Zamor, 2003). The changing of the psychological contract between employee and employer, downsizing and massive company layoffs, and increased use of technology are also considered to be motivators of the spirituality movement (Harrington et al., 2001). Additionally influencing the spirituality and work movement is a heightened awareness of the fate of humanity and the world. Jaccaci and Gault (1999: 22) comment that "this renaissance, this dawning and awakening of humanity, is the emerging era of evolution...it is a time of our conscious creation of human evolution shaping all life on earth." Lastly, the events of September 11, 2001 in the United States had a significant on people. Since 9-11 many are re-evaluating their lives and their work, as they search for a deeper meaning in life, more than just achieving career success (Garcia-Zamor, 2003; Howard, 2002; Wrzesniewski, 2002). "We are at a time in history when we need to revise our entire view of ourselves, the nature of work and leadership of organizations" (Cacioppe, 2000: 48).

There are, of course, both physical and psychological benefits to having a healthy spiritual life. Parker-Hope (2001: 9) notes that "increasingly, the medical profession is promoting the notion that a person's spiritual well-being may be as important a factor in long-term health as are diet and exercise...it [the value of spiritual health] has become a widely accepted area of medical study." There has also been a connection proposed between spirituality and emotional intelligence - the more in touch with his or her spirituality, the greater will be his/her emotional intelligence, and therefore the more productive he or she will be at work (Tischler, Biberman, & McKeage, 2002). Lastly, a spiritual workplace, although it is debatable what that actually means, has been linked to ethical behaviour (Garcia-Zamor, 2003; Moberg, 2001; Pava, 1999).

However, many scholars in the spirituality in the workplace field are reinforcing the Job-Career-Calling model in arguing that work should be "meaningful" to the individual, and that work should be where we find our "purpose" (Fox, 1994; Harrington et al., 2001; Herman & Gioia, 1998; Mitroff & Denton, 1999a, 1999b; Raelin, 2006).

It is hard for many of us to separate our work from the rest of our being...we spend too much of our time at work or in work-related social and leisure activities for us to expect to continue trying to compartmentalize our lives into separate work, family, religious and social domains. As one result, the pressure many of us feel to recognize and respond to the sacred in us must find outlet in the secular workplace. If personal or social transformation is to take place, it will most likely take place at work. For, after all, life is about spirit and we humans carry only one spirit that must manifest itself in both life and livelihood. (Fairholm, 1996: 12)

To analyze the problems with this growing discourse privileging work and provide needed insights into how individuals make sense of life we can use existential philosophy.

Existentialism

The existential self is embodied. Being-within-the-world means that feelings and primordial perception precede rationality and symbol use and, in fact, activate them. The existential self is becoming. The experience of self is constantly unfolding as the

individual adapts to new situations and possibilities for self-growth. The existential self is reflexive. The self is the focal point of all aspects of being: values, creativity, and emotions. The self is also the arena for the ongoing tension – if not conflict – between the individual and society. (Johnson & Kotarba, 2002: 8)

Existentialism is a multi-faceted view of the nature of individual “Being,” and as such, is made up of many varying perspectives (Baggini, 2005; Breisach, 1962; Burrell & Morgan, 1979; Cotkin, 2003; Grene, 1959; Kaufmann, 1989; Reinhardt, 1960; Reynolds, 2006; Schrag, 1977; Tanzer, 2008; Tillich, 1952). Though Sartre (1970: 25-26) himself argued that, “the word is now so loosely applied to so many things that it no longer means anything at all,” there is general agreement that existential philosophy attempts to make sense of and provide answers to the circumstances and dilemma of the human condition. Karl and Hamalian (1974: 13) argue that, “Existentialism, ultimately, is more a frame of reference than a fixed idea...a process of thought rather than a distinct movement.” The existential philosophers challenged our conception of what it means to be ‘human’ and in doing so gave us the ambitious goal of encouraging humanity to seek out an ‘authentic’ existence.

Existential philosophy can arguably be traced back to Socrates when he famously stated that a key problem of humanity was a lack of self-examination - “the unexamined life is not worth living.” However, the initiator of existentialism, as we know it today, is considered to be Soren Kierkegaard, as he was reportedly the first to reject the emphasis on universalism (existence is consistent for all people) in favor of a focus on the individual - “my listeners, do you at present live in such a way that you are yourself clearly and eternally conscious of being an individual” (Kierkegaard, 1956: 195)? Since Kierkegaard, many others have contributed to our understanding of existential philosophy – Buber (1958, 1967), Husserl (1967, 1970), Nietzsche (1974, 1990, 1999), Camus (Camus, 1967b, 1972), Jaspers (1957, 1969), Marcel (1949a, 1949b, 1950), Heidegger (1967), Sartre (1956, 1962, 1970, 1975), De Beauvoir (1983), Tillich (1952) and Frankl (1978, 1985), each providing his or her own unique perspective (Collins, 1952; Cotkin, 2003; MacDonald, 2001; Reynolds, 2006; Wahl, 1969). Others, such as Hegel, Dostoyevsky, Tolstoy and Kafka are sometimes included among the Existentialists, but their inclusion would be debated (Reynolds, 2006). Still others, such as Heidegger and Camus, rejected the existentialist label (perceiving it to be a negative characterization), but we cannot ignore their influence on the development of existential theory, even though they may address many different issues through their philosophy (Harper, 1972; Kaufmann, 1989; Reinhardt, 1960; Reynolds, 2006; Tanzer, 2008).

They share a common concern for what Husserl called the ‘life-world’ (Lebenswelt), for the world of everyday experience as opposed to the realm of transcendental consciousness. However, apart from this concern with the ‘life-world’ and the way in which men exist within it, it is misleading to view their work in similar terms. Each develops a theoretical perspective which, while adhering to a roughly similar position in terms of the various strands of the subjective-objective dimension of our analytical scheme, addresses itself to quite different issues and problems. (Burrell & Morgan, 1979: 243)

Despite existentialism’s ancient history, it is more recently rooted in nineteenth century Europe and only really came into prominence in the twentieth century following the end of World War II (Allen, 1973; Barrett, 1962; Cotkin, 2003; Tanzer, 2008). After the war, Europe went through a long period of recovery and the general population experienced profound feelings of confusion, questioning, and disillusionment with religion, and were therefore, looking for a philosophical direction (Breisach, 1962; Cotkin, 2003; Reynolds, 2006). Heidegger, Sartre, and other philosophers provided answers and direction for individual life through their existential philosophy.

Existentialism is based on the premise that “existence precedes essence” – that people are thrown into the world and simply exist, and their essence is created through the lives they choose to live. The

emphasis of existentialism is on the individual's experience with life and not on a preconceived human nature. "What do we mean by saying that existence precedes essence...we mean that man first of all exists, encounters himself, surges up in the world – and defines himself afterwards" (Sartre, 1970: 28). This puts the onus, and hence responsibility, on the individual and how he or she chooses to live life. This notion of the individual creating meaning is quite different from the belief that humanity has a pre-determined essence (see Locke, Hobbes, or Rousseau) or that it is for example the mode of production that creates man's essence (Marx & Engels, 1963, 1968)), although Sartre was willing to strongly consider the latter possibility in *Search for a Method* (1963). In existentialism, essence and therefore meaning is created by the individual on an on-going basis throughout his or her life.

For many existentialists, humans are a "tortured" species because of their incomprehension (of the "absurdity" as some would say) of life. We are thrown into this world but, as Sartre notes below, are given no rulebook for how to live.

According to Sartre, man, if he honestly reflects, cannot help realizing that his situation is like that of the player or the artist. Herein consists the absurdity of existence. Life has the same value as a game has – that is, whatever value the players choose to give it. One has to play the game, but one is never given a book of rules. (Barnes, 1959: 49)

Not surprisingly, many of the existential philosophers were atheists and believed that the "absence of God" resulted in "emptiness" for life, hence incomprehension, which must be somehow reconciled and filled (Breisach, 1962; Harper, 1972). Kierkegaard and Tillich are notable exceptions, as they believe that the only logical answer for how to live life is through devotion to God (Reynolds, 2006; Tillich, 1952). Regardless of their religious outlook, however, the existentialists were all tapping into people's lack of, and search for, meaning in their lives.

Although there are many types of existentialism, there is general agreement that existentialism is focused on how the individual self creates meaning in a chaotic world (Barnes, 1959; Breisach, 1962; Reinhardt, 1960; Reynolds, 2006; Sartre, 1956, 1970; Wahl, 1969). Existential thought highlights the enormous possibilities of human existence and what can "be" for individual life; the focus is on individual Being and the reflexive Self that is always being constituted. "Wherever man has seen his life and his world as infinitely possible, as infinitely variable, as infinitely problematic, there existentialism exists as a region of the mind" (Karl & Hamalian, 1974: 13). For the Existentialists, "philosophy is essentially the study of Being" (Wahl, 1969: 95), i.e., what does it mean to exist. "Existence is reached most immediately and certainly in the existing self, although not even the existentialists can settle among themselves upon the exact nature of this self as revealed in a primary inspection" (Collins, 1952: 196). Heidegger himself noted that the most important question people can ask themselves is, "What is being?" He argues that this was the only true question of significance and everything else was secondary to the investigation of existence.

The question of what is "being," is, of course, up for great debate (May, 1983; Reynolds, 2006), but many philosophers agree that it is related to an awareness or consciousness of oneself, that one "is." For example, consciousness makes us aware of thoughts and feelings, and of time passing. Bugental (1965: 27) defines "'be-ing' as a name for the process of self-aware existing." Sartre uses the terms "being-in-itself" (en soi) and "being-for-itself" (pour soi). Being-for-itself refers to the capacity for self-reflection, possessed by most humans, while being-in-itself refers to that which does not have this capacity, i.e., objects which have no consciousness (Reynolds, 2006). May (1983: 17) defines Being as "the individual's 'pattern of potentialities.'" According to Heidegger, humans are unique in that they have an understanding of "being in the world," and they must then deal with the possibilities or paths of life from which they must choose, rather than follow through instinct (Heidegger, 1967). As we make choices, therefore, we produce a new self, but that new self is only a temporary self as the individual is always changing based on new intentions, new choices and new experiences including one's work life. Of

the many choices people make throughout their lives, work is for most, a major choice which impacts other aspects of life, as people seek to live a meaningful existence.

Existentialism and Work

We live in extraordinary times, in which a majority of people in postindustrial societies have an unprecedented array of choices about how they live and work, and what they buy. Machines are our slaves, and the basic necessities of life are, for the majority of people, relatively easy to obtain. This is an era when life should be filled with all sorts of rewarding activities. Yet many find themselves caught up not only in long hours of work but in debt, and suffering from stress, loneliness, and crumbling families. (Ciulla, 2000:234)

The discourse of privileging work that is implicitly being encouraged by the Job-Career-Calling model and many scholars in the spirituality in the workplace field is problematic from an existential perspective in two ways: (1) There is now a growing societal pressure on people to make work their primary source of meaning in life which is contrary to the individual freely choosing his or her life, and; (2) For many people, an emphasis on work may not be the path to the Authentic and therefore meaningful life as they may be ignoring other elements of life.

Firstly, the overwhelming existential challenge for the individual is the creation of “authentic” or meaningful existence, that is unique to each individual, and most importantly, to try to avoid the inauthentic life or living in Bad Faith. “Meaning in life is obtained through an authentic existence. The conditions for achieving this kind of existence are commitment to actualize one’s possibilities to choose and decide about the possibilities and to act on them” (Orbach, 2008: 284). The starting point for authentic action is the recognition that meaning must be determined by the individual self (Lavine, 1984). The individual must accept responsibility for his or her life and make living an authentic life a continual and never-ending goal. “Man moves physically, morally, and intellectually in view of an end, in order to attain a greater richness of his own being and existence as well as in order to enrich and enhance the being he finds in the surrounding world” (Reinhardt, 1960: 198). Authenticity is subjective to the individual and only manifests itself in the life that is ultimately lived, a life in which he or she is conscious and free. Golomb (1995: 10) notes, “though the term [authenticity] is indeed derived from *auctoritas*, the authority in question is self-directed – it is the mastery of one who freely creates the pathos of authenticity and strives to express and live it in the everyday.”

However, it is difficult to live Authentically as people are unduly susceptible to the influence of the herd (which could be other people or the discourse of the day) (Breisach, 1962; Heidegger, 1967; Pappenheim, 1959; Solomon, 1974). Heidegger says that we “fall” (fallenness) into inauthenticity and become what is expected of us in the “public arena” and behave according to the norms and rules of society. We escape from our true selves into a public life that is untrue or false. People may strive to identify a Calling that they believe to be in accordance with the norms of society and not their true desires, i.e., made in Bad Faith. “Many people are like blind men feeling their way along in life only by means of touching a succession of other people” (May, 1953: 32). This makes choices about work difficult as people are influenced by the current discourse of work (and success in life) which equates success in life with success in the workplace. Grierson (2007: 34) notes, “If we can assign a verb to our passage through life, possibly the best fit is *drift*. We mark time and distance, and we may try roughly to hold a bearing, but we go where we’re pushed.” Today this means being pushed to “find your Calling” and young people are being encouraged to identify work that is their passion and to change their work if they do not see it as their passion.

Ironically, then, people's legitimate search for a more meaningful life experience, makes them vulnerable to the 'meaning in work' discourse. Many scholars argue that there is a "progress paradox" currently taking place in Western society – an increasing trend toward superficiality (materialism, celebrity worship, internet obsession), and at the same time, there are indications that people are also hungering for a more meaningful existence. Despite great advances in medical care and technology, and a much higher average standard of living, general well-being and happiness levels have not changed in decades (Easterbrook, 2003; Myers, 2000; Seligman, 2002). Anxiety, depression, use of medication, and suicide levels have, in fact, all dramatically increased, and meaning has become increasingly attached to security, comfort, consumption and material gain (Cottingham, 2003; Easterbrook, 2003; Myers, 2000; Wattanasuwan, 2005). The belief that increased wealth and materialism along with the resulting greater security and comfort would be the path to fulfillment and happiness has not materialized. "The great self-confidence of the Western technological nations, and especially of the United States, was in large part because of the belief that materialism – the prolongation of a healthy life, the acquisition of wealth, the ownership of consumer goods – would be the royal road to a happy life" (Csikszentmihalyi, 1999: 822).

Perhaps deep satisfaction is not to be found in the pursuit of material comfort, but in intrinsically meaningful activity. Accordingly, many people are reorienting their lives, away from the pursuit of wealth and towards the pursuit of meaning. They are reducing the number of hours they work, changing their jobs, working from home, or giving up work altogether. In each case, they are trading income for time to pursue goods they regard as worthwhile. (Levy, 2005: 176)

Therefore, it appears that we are increasingly searching for meaning and as a result vulnerable to the discourse that the meaningful life can be found through work. Work, whether it is a necessary evil due to the financial imperative, or our first love, is arguably one of the most important determinants of whether a person considers his or her life to be meaningful, and therefore Authentic. "Work is the most common experience of adult life... some love it, others hate it, but few of us are able to avoid it... because we spend two-thirds of our waking life on the job, work is the way we come to know the world and are known to the world... work becomes our identity, our signature on the world... to work is to be and not to work is not to be" (Gini, 2000: ix). Albert Camus' legendary Myth of Sisyphus demonstrated what could arguably be the predicament of some people in relation to work. Sisyphus is condemned by the Gods to push a stone up a hill only to have it roll back down, and this continues forever (Camus, 1967a). Although some people love their work and their life, this picture of the futile life is undoubtedly the case for many others whether they would choose to admit it or not. For a significant number of people, life and especially their work, is mostly daily drudgery, a treadmill of existence from which they cannot get off, and from which they gradually watch time and their life pass by. It is not surprising, therefore, that many management scholars are focusing on the problem of meaning in work in the hopes of turning people's negative experiences of work into the possibility of real engagement.

As noted, work can fulfill a variety of needs for the individual and the choice of work is usually one of the most important choices we make in life. Many people may come to feel that their work should be their life's Calling. For some, the choice may lead to authenticity while for others it may result in bad faith - made unconsciously or as the result of the societal pressure of the current discourse that is privileging work. "The situations into which human beings are cast are multiple...however described, they must be experienced inwardly by each individual, each Dasein, each being-in-the-world; and each living subject must effect his own authentic relationships with the situations he encounters throughout the "instants" of his life" (Greene, 1967: 129).

Above all else, existentialism is about awakening or rebelling from the "ordinary person" syndrome, the routine pattern of existence that society can inadvertently or overtly place on people (Olson, 1962; Reynolds, 2006; Wild, 1966). Breisach (1962: 4-5) contends that, "Existentialists have asked for a life in which man continuously questions his purpose and accepts responsibility for his

actions, one which truly reflects man's special position in this world." From birth, different societies ingrain in people an imperative to live the "good" life, one which is usually determined by the approval of other people in that society. For example, in our Western context, a young person may choose to pursue a certain profession because it is one in which the parents have encouraged as opposed to what the person truly would like to do. This is traditionally followed by marriage, children, home ownership, and planning for retirement without perhaps thinking about the real desire for any or all of these things. The first problem with privileging work, therefore, is that growing social pressure to have a calling can prevent individuals from making informed, authentic choices.

The second problem is the emphasis on work itself. A person's life consists of a number of components, and like various pieces of a jigsaw puzzle, they must fit together in order to translate into authentic existence. Work is only one aspect of the puzzle that makes up a life and must fit with other aspects of life. "How people work affects the way in which they spend their time away from work, for it places constraints on the enjoyment of "free time" and conditions the overall mode of adjustment to life" (Rinehart, 2006: 1). Work and the other areas of a life (for instance family, hobbies, athletics and spirituality), should not be viewed as separate domains but merely as different components of the puzzle that is meaning. Viewing work and home life as totally separate implies that people can view each component separately and compartmentalize their life, which most research today shows is rarely the case (Cinamon, 2006; Eikhof, Warhurst, & Haunschild, 2007; Haar, 2006; Huang, Hammer, Neal, & Perrin, 2004; Judge, Ilies, & Scott, 2006; Perrone, Webb, & Blalock, 2005).

It could be that the interesting, fast-changing, and emotionally demanding work offered by tomorrow's organizations will not prove to be the end-all and be-all to the elf-developer. Aspirations of getting more time with family and pursuing personal goals hint at other dimensions to their identities. To the extent we can set aside simplistic notions that 'self-actualization' is the pinnacle of human motivation, this makes room to consider how family feeling, community membership, and spirituality are transcendent aims of human development. (Mirvis & Hall, 1994: 378)

The existential Self is continually being constituted, and a person may be moving *towards* authenticity or away from it. For example, people may be influenced to believe that having a Calling is a necessary part of living a meaningful life; however, after having experienced a Calling they realize that they do not feel 'right' in this life, and regret their decision. A high priority on one's work life will be especially difficult to sustain as a person ages and changes how he or she views life (Grierson, 2007; Hollis, 1993, 2005; McAdams, Josselson, & Lieblich, 2001; Wethington, Kessler, & Pixley, 2004). A person at age forty usually regards his or her life very differently than when he or she was thirty or twenty years of age, and as the individual changes, so too may his or her relationship to work. For example, upon graduation from university many students will usually seek a job or career that pays them the highest salary. They may choose work based on financial need if they have large financial debt accumulated throughout their university years, and pass up work that they would prefer in favor of work that pays the highest salary. As people age, their life circumstances will undoubtedly change, as well as their personal views on what is important to them. This means that they may look to other possibilities when it comes to work or to expand other components of their life or to add new avenues of life. "There is a search for meaning and new life goals: Spirituality is becoming increasingly important, especially for people at mid-life. With the former goals now viewed in a different perspective, and with time seemingly suddenly shorter, the person may begin to search for new values, goals, and meaning in life" (Hall, 2002: 113). A young person may become a teacher with the initial feeling that he or she has found a calling, but as the years pass the work is viewed as a career and finally as a job. If they believe that their work should be a calling this will result in anxiety and frustration and perhaps existential angst.

Perhaps deep satisfaction is not to be found in the pursuit of material comfort, but in intrinsically meaningful activity. Accordingly, many people are reorienting their lives, away from the pursuit of wealth and towards the pursuit of meaning. They are reducing

the number of hours they work, changing their jobs, working from home, or giving up work altogether. In each case, they are trading income for time to pursue goods they regard as worthwhile. (Levy, 2005: 176)

From an existential perspective we exist contingently, much of life cannot be predicted, and what may be meaningful at one point may have no meaning at a different point in time. Bugental (1965: 40) states, “Man lives in contingency...can and does take action that affects his awareness and experience...takes such action without ultimate guide posts of universal values or built-in instincts...in constant relation with his fellows while yet being separate from them.” Despite efforts to live authentically, it is difficult for most people as many events may be out of their control. Therefore, slipping into “bad faith” is always a potential danger, and shadows every person’s existence. For example, an occupation may be meaningful for many years for an individual but later in life hold little interest besides the salary; unfortunately, a typical situation for many people (Grierson, 2007; Hollis, 1993). Numerous unforeseen events will take place throughout the course of our lives. Some of these events will affect the self positively such as marriage and children, while others will affect the self negatively, e.g., death of a loved one or being fired. The effects of these unforeseen “happenings” of life (that all individuals will experience) are dependent on how they are interpreted by the individual. For example, the 9-11 tragedy resulted in varying states of existence depending on how the experience was interpreted by the individual. For some people it resulted in a major change in how they viewed their work (Wrzesniewski, 2002).

What is important to understand is that the same or similar ‘conditions’ can generate a shift from authentic to inauthentic ways of being, or vice-versa, or, indeed, provoke no shift at all. The impact of a tragedy like the destruction of the World Trade center in New York City may have been experienced by some as a moment of illuminating authenticity, but it as surely induced an inauthentic stance in others. Equally, for some it may have had no impact whatever upon their currently adopted way of being. (Spinelli, 2005: 111)

Ultimately, the pieces that make up a life, especially one’s work life, must fit coherently together in order for one to feel that life is meaningful. It does not matter how the life is judged by others, only how it is perceived by the individual. Therefore, what is of the most importance is how the individual perceives his or her overall life, and the value placed on work will vary based on how other components, e.g., family, hobbies, community involvement, that make up one’s life are perceived. Orbach (2008: 283) notes, “Authentic being is creating, and constructing one’s life on the basis of what one thinks, feels, and desires and not on conventions, norms, fashions, or expectations of others. In other words, to be oneself is to realize and actualize one’s subjectivity and one’s own possibilities and unique potentials.” This means that for some people work will be highly valued, i.e., as a Calling, whereas for others it will be far less important (Career or Job). The current discourse of work is conditioning people to believe that they must have a career or calling. However, a Job could be a conscious authentic choice for many people who wish to put their time and energy into other aspects of life as opposed to their work life. Work that is viewed as a job and that can be left at the office tends to be less time-consuming and stressful. Banaga (2000) noted that a Calling may be connected to increased levels of stress and Careers and Callings are certainly much more time-consuming and have much greater effect on the individuals overall life (Wrzesniewski, 1999; Wrzesniewski et al., 1997). Most importantly, how many jobs can be callings, realistically? Most people would prefer to have a decent job that they can enjoy and which provides a reasonable income, but many have to settle for work that it not fulfilling and is far from a calling.

According to existentialism it does not matter how we view work; all that matters is that we choose our self by choosing our work freely. And this does not necessarily mean getting everything we desire, e.g., becoming leader of a country or a famous actor. “It is necessary to point out to ‘common sense’ that the formula ‘to be free’ does not mean ‘to obtain what one has wishes’ but rather ‘by oneself

to determine oneself to wish' (in the broad sense of choosing)" (Sartre, 1956: 483). Finding meaning in our work is not the existential goal; the goal is only that we consciously and freely choose our life.

Conclusion

The authentic life may indeed include work as a Calling, but the authentic life may also include work as a Job. What is important is that existence is judged by the individual and there are many ways to exist in this world. According to Sartre, we must never allow our humanity to be defined by others, only by ourselves (Sartre, 1956). No matter how well society may view a type of work, e.g., medical doctor, teacher, or artist it may be the wrong choice for that particular individual. "I may be connected to value, contribute to a wide network of relationships, and be deeply appreciated by my society, but if I lack the feelings, attitudes, intentions, and beliefs appropriate to my situation, my sense of meaninglessness will be acute" (Bellotti, 2001: 80). And so it is up to the individual to ascertain whether the need for balance or security is authentic or externally imposed. "Ultimately, if he is to achieve authentic existence, the individual must make his decision alone, but this decision, made in solitude, at the same time reaches out into the social context which determines the self's concreteness" (Schrag, 1977: 201). A life lived for others is contrary to the main tenet of existentialism; that is, for the individual to "choose one's life" (Sartre, 1956). However, if the individual takes responsibility for the choice, then it could be argued that it is chosen in good faith and potentially leads to authenticity. The danger is not in *what* we choose as work, but in *how* we choose that particular work; if we give up our freedom to choose by not questioning our being. Therefore, the preliminary conclusions of this paper suggest that we must start to probe the emphasis on work as the primary source of meaning in life and particularly question the assumed value of a work calling.

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ASB 2010
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STOP SIGNS ON THE WIRELESS HIGHWAY OR REAR-ENDED BY ROGERS: WHAT CAN A SMALL COMMUNITY STAKEHOLDER DO?

This paper focuses on the company-stakeholder conflict between a large telecommunication company and a small community group over the placement of a cell phone tower in the community. The authors review the literature on stakeholder theory and the debate over who should count as a stakeholder. The findings of our case study illustrate how this company failed to live up to their espoused stakeholder practices and contribute to a better understanding of the contextual and dynamic aspects of company-community stakeholder conflict. Implications for future research are discussed.

“The world is a dangerous place, not because of those who do harm, but because of those who look on and do nothing.”

Albert Einstein

The concept of “stakeholder” has been used as a heuristic in the management literature for nearly three decades. The stakeholder framework has been forwarded to help managers to both define an organization's obligations and manage relationships with its respective stakeholders. Increasingly, academics and company communications report that firms are expected to take, and are taking, a multiple stakeholder approach. We consider the case of telecommunication company, Rogers Wireless, constructing a cell tower in a small Island community to illustrate company-community conflict and how a company can fail to live up to their espoused stakeholder practices.

Calls have been made for empirical study of how firms actually do stakeholder management (Jawahar & McLaughlin, 2001; Jones, Felps, & Bigley, 2007). Friedman and Miles (2006: 133) suggest that,

In order to understand the nature and development of stakeholder relations, stakeholder interests, values, beliefs, and identities underlying their own decision-making, processes and outcomes need to be analyzed, not only by managers in focal organizations, but also by stakeholders, stakeholder group strategists, and academic analysts of the stakeholder concept.

It has also been suggested that there has been little stakeholder research that puts the focus on the stakeholder rather than the firm (Frooman, 1999). We adopt Donaldson & Preston's (1995) notion that normative stakeholder theory is the most significant development of stakeholder theory and thus adopt a normative approach to our study.

Our in-depth study of an on-going stakeholder conflict contributes to the development of stakeholder theory. We also feel that by focusing on some of the dynamic and complex contextual aspects of stakeholder management we contribute to stakeholder theory and practice. Friedman & Miles (2006) have

suggested that there is limited stakeholder literature that addresses the dynamic aspects of stakeholder management.

In the next section, we briefly review the literature on stakeholder theory and the debate on who or what should count as a stakeholder, in particular focusing on the Mitchell, Agle, & Wood (1997) stakeholder framework. The third section describes our research methods. We then apply the case of the Roger's cell tower in the community of Sherwood to consider how some companies fail in their stakeholder management practices and to critique some of the beliefs and assumptions underlying the stakeholder attributes of power, legitimacy, and urgency that are an integral part of the Mitchell et al. framework. Following this, we discuss some implications of this research.

The Stakeholder Concept

Stakeholder theory concerns the nature of the relationships between organizations and their respective stakeholders and the processes and outcomes of these relationships for organizations and their stakeholders (Jones & Wicks, 1999). Definitions of stakeholder range from the broad and inclusive to the narrow and exclusive. Stakeholders have often been considered to include any groups or individuals who can significantly affect or be affected by an organization's activities (Evan & Freeman, 1988; Freeman, 1984; Donaldson & Preston, 1995; Greenley & Foxall, 1997). More narrow definitions include or exclude stakeholders based on managerial perceptions of stakeholder power, resource dependence, or risk (e.g., Clarkson, 1994; Greenley & Foxall, 1997; Harrison & St. John, 1996; Nasi, 1995).

Normative stakeholder theory focuses on the basis of stakeholder legitimacy, whether it is risk, property rights, or moral claims (Mitchell et al., 1997). According to Donaldson and Preston (1995), a 'social contract' exists between business and society and "stakeholders are identified through the actual or potential harms and benefits that they experience or anticipate experiencing as a result of the firm's actions or inactions" (p. 86). The firm-stakeholder relationship has been theorized to be relational rather than just transactional (Freeman & Liedtka, 1997). Managing stakeholder relationships through balancing stakeholder interests creates value and goodwill for the firm (e.g., Freeman, Harrison, & Wicks, 2007; Nasi, 1995). It has been suggested that stakeholders influence decision makers in companies, in particular through media and increasingly through internet, and that the firms who ignore these stakeholders face implementation delays, boycotts, and legal battles (Harrison & St. John, 1996; Freeman, Harrison, & Wicks, 2007; Carroll & Buchholtz, 2009). Stakeholder theory is seen as a way to understand how business is engaged in value creation for *all* stakeholders (Freeman, Harrison, & Wicks, 2007; Nasi, 1995).

The company-community stakeholder relationship is particularly relevant to our study. It has been suggested that companies often prioritize community interests in their stakeholder management (Bendheim, Waddock, & Graves, 1998). Others have similarly suggested that managers attribute high stakeholder salience to the local community (Altman, 1998; Burke, 1999). For example, Burke (1999) emphasized the strategic importance of considering community expectations and being seen as a "neighbor of choice". However, others have found that companies often strategically choose who they want to be neighborly to (e.g., Driscoll and Crombie, 2001).

Mitchell et al. (1997) attempted to refine stakeholder theory by specifying theoretically "who or what really counts" as a stakeholder in management thinking. According to these authors, stakeholders have one or more of the following attributes: power to influence the firm; legitimacy of a relationship; and/or urgency of a claim. They predict "the salience of a particular stakeholder to the firm's management is low if only one of

these attributes is present, moderate if two attributes are present, and high if all three attributes are present” (879).

In stakeholder salience models, stakeholder attributes are identified and qualified by the perception of the managers concerned. Latent stakeholders are defined as those having low salience arising from only one attribute. These, in turn, can be categorized as dormant, discretionary, and demanding. Demanding stakeholders have neither power nor legitimacy but are salient solely based on the urgency of their claim. Expectant stakeholders are defined as those having moderate salience by way of two attributes. These include dominant, dangerous, and dependent. For example, the affected citizens, animals, and ecosystems of the Gulf of Mexico would be considered dependent stakeholders with regards to the BP oil spill. These expectant, dependent stakeholders have little power, as perceived by managers, but make urgent, legitimate claims and depend on other stakeholders with higher power to join forces with them in order to gain salience. In the following section, we consider the theories and assumptions underlying the stakeholder attributes of power, legitimacy, and urgency, and discuss some limitations of this framework.

Power, Legitimacy, and Urgency

Power

Many conventional management theories emphasize the central role of power in decision-making, focusing on utilitarian resource-exchange and dependence-based relationships (e.g., Blau, 1964; Oliver, 1991; Pfeffer, 1992). Similarly, most stakeholder models have emphasized managerial perceptions of power in identifying and prioritizing stakeholders (Clarkson, 1995; Greenley & Foxall, 1997; Harrison & St. John, 1996; Mitchell et al., 1997). An instrumental stakeholder perspective defines stakeholders as those groups or individuals who are in a mutually dependent or exchange relationship with the firm (Freeman, 1984; Freeman & Evan, 1990; Hill & Jones, 1992; Nasi, 1995; among others).

Mitchell et al. (1997) applied Etzioni’s (1964) organizational bases of power to their stakeholder attribute of power. Their application implies that a stakeholder has power to the extent that it can use coercive (force/threat), utilitarian (material/incentives), or normative (symbolic influence) power to “impose its will in the relationship” (865). However, conventional stakeholder theories have been criticized for overlooking asymmetrical relations of power and systemic inequalities (Banerjee, 2000), as our case study will reveal are present in the Rogers Wireless-community stakeholder relationship.

Legitimacy

The management literature comprises both strategic and moral bases for legitimacy. In stakeholder theory, these include contractual relationships (e.g., legal, moral, or ownership rights) (cf. Evan & Freeman, 1988) or exchange-based relationships in which those who own the resources supply “critical resources” to the firm (Hill & Jones, 1992:133). According to Hybels (1995), however, resource flows provide the best evidence of organizational legitimacy; or as Mitchell and his colleagues suggest, “[l]egitimacy gains rights through power...” (1997:870). It has been suggested that legitimacy is defined by the values of those with social power (Stinchcombe, 1968). Most of the literature suggests that stakeholder legitimacy is grounded in pragmatic evaluations of stakeholder relationships rather than in normative assessments of moral propriety (cf. Aldrich & Fiol, 1994).

From a normative perspective, this approach has not gone without critique. For example, Banerjee (2000) suggested that managers are bounded by a legitimacy that has an economic basis and that does not genuinely address ecological and social justice concerns. Similarly, whereas risk has been described as a primary basis for stakeholder legitimacy (Clarkson, 1994), some scholars have suggested that

conventional management studies focus on a narrow view of risk- one focused primarily on financial risk to the firm (e.g., Shrivastava, 1995a; see also Berman, Wicks, Kotha, & Jones, 1999). Moreover, public attention is often focused on high profile, large-scale crises, such as the BP oil spill and slowly unfolding stories that deal with scientific uncertainty (such as exposure to electromagnetic radiation) are not given as much attention (Allan, Adam, & Carter, 1999).

Urgency

Mitchell et al. (1997) defined stakeholder urgency as the stakeholder's claim for immediate attention based on the ideas of time sensitivity and criticality. Like the other two attributes, most perceptions of urgency are biased towards economic short-termism, which is often precipitated by the use of cost-benefit analysis, rates of return, and changes in stock prices (Agle, Mitchell, & Sonnenfeld, 1999; Laverty, 1996). In this sense, urgency, like legitimacy, appears to gain rights through (economic-based) power.

Research Methods

Our research focused on an in-depth case study of the company-stakeholder relationship between Rogers Wireless and a small Island community in Charlottetown, PEI. The research approach was largely inductive (Glaser & Strauss, 1967). Case study allowed us to access the complexity of this particular case as well as an emerging societal problem (Yin, 2009). Case study has been used in previous stakeholder research (e.g., Beaulieu & Pasquero, 2002; Driscoll & Crombie, 2001; Friedman & Miles, 2002). Winn (2001: 158-159) suggested,

...[T]he context dependence and situation specificity of stakeholder research has not been studied very closely. Grounded and case-based studies especially have the power to highlight the role of history, country, and regional context, industry, and schools of management thought.

Data were collected over a period between May 2009 and August 2010. The focal methods for data collection were semi-structured and unstructured interviews with community members, participant observation, and collection of relevant documents, press releases, communiqués, archived records, company web pages, and media articles.

We acknowledge upfront that the analysis is partially biased toward the perspective of the community, our focal stakeholder. However, we believe there are benefits of research that places the focus on the stakeholder rather than on the firm. Based on our research, the following case details emerged.

The Case of Rogers Wireless and the Community of Sherwood

In October 2006, Rogers Wireless applied to the City of Charlottetown for a permit to build a 47 meter cell phone tower on property immediately to the West of Mount Edward Road, Charlottetown (Application, City of Charlottetown Building Permit, Oct. 23, 2006). The land was owned by Eastlink, Canada's largest private cable company, which has increasingly moved into wireless technologies over the past decade. Following that application, there occurred a number of discussions and submissions from Rogers and from the citizens in the immediate Mount Edward Road neighborhood on the merits of the building permit application. Rogers claimed to have done door-to-door visits in the neighbourhood to share information and that these visits "were well received" (Rogers Summary Information Package, July 2009). Some members of the surrounding community challenged Rogers' permit to construct a tower so close to family dwellings, a university, an order of religious sisters, and children's schools and care centers. On March 12, 2007, at a regular meeting of City Council, it was decided to begin public

consultation on an amendment to Section 28 of the Zoning and Development Bylaw that would enable Rogers' application to succeed (Council Minutes, p. 5).

The focal community is Sherwood, a community in the northern section of the city of Charlottetown in central Queens County, Prince Edward Island (PEI). PEI is the smallest province in Canada and is known culturally for its holding onto tradition. Sherwood Station, as it was originally known, used to be a stop on the Prince Edward Island Railway. The area was incorporated as a village in 1960. The village of Sherwood was amalgamated into the city of Charlottetown in 1995. Sherwood was largely a farming district that has developed into a blend of residential, commercial and light industrial districts.

At a public meeting, held on April 17th, 2007 in the Georgian Room at the Charlottetown Hotel, Rogers' representatives and Industry Canada representatives were invited and attended along with several hundred concerned citizens. Dr. Magda Havas, an expert witness on the biological implications of electromagnetic and radio frequency radiation from Trent University spoke. As the meeting concluded the overwhelming consensus was that the cell tower would not be permitted to be built. In May 2007, the City Council unanimously passed a resolution to reject a request that the Zoning and Development Bylaw be amended to permit construction of the cell tower (Council Resolution, May 14, 2007).

In early June, counsel for Rogers sent a letter to the City Council (Letter from Stewart McKelvey Stirling Scales (SMSS), June 4, 2007) requesting a reconsideration of the City's decision to turn down Rogers' application, essentially stating that the laws of Canada trump Municipal Law. The City Council (again unanimously) rejected Rogers' request for a reconsideration (Resolution, July 9, 2007). On July 10th, 2007, the City Planning Department wrote to counsel for Rogers and set out in detail, the City's reasons for rejecting Rogers' application for a building permit, including refusal to acknowledge Industry Canada's "exclusive jurisdiction" (Letter from Council to SMSS, p.1). In 2008, Industry Canada and Rogers tendered further correspondence to the City about reconsideration of its decision to reject Rogers' application for a building permit. This included detailed maps of wireless coverage and addressed the *necessity* of the Mount Edward Road location (E-mail correspondences from Industry Canada to City, January 18, 2008 and Rogers Communication, July 2008). By letter on November 25th, 2008, Donna Waddell, Director of Corporate Services for the City, told M. Plourde, of Rogers' Montreal Office, that she had reviewed the relevant material and that there were no circumstances that would cause the City to change its mind or the location of a tower in the Mount Edward Road area. Alternative sites were proposed (Letter from D. Waddell to Rogers, Nov. 25, 2008).

In February, 2009, Industry Canada, the federal body governing radio communications, sent a letter to the City of Charlottetown advising the City that it had approved the construction and had advised Rogers that it could proceed with constructing the tower (Letter from Industry Canada to Council, Feb. 27, 2009). The public knows little of what went on between Rogers and Industry Canada. The only public information is the aforementioned letter in which Industry Canada stated that Rogers was in full compliance with Health Canada's Safety Code 6. The letter stated,

Industry Canada's challenge lies in balancing the *need* of introducing new and/or improved radio communication services while still giving *consideration* to any concerns that may be raised against such telecommunication infrastructure (p.3, authors' italics).

Mr. George MacDonald, retired Mayor of Charlottetown, could not recall a time since his service on council began in 1977 where the Federal Government overruled the city in such an underhanded way. Mr. MacDonald said that Charlottetown's Municipal Government has had a history of amicable dealings with its federal counterparts and usually agreements were made in open cooperation (Personal communication with George MacDonald, July 14, 2009).

The community, seemingly defeated, gathered itself to reassert its rights. Public protests were held, signatures were gathered on a petition, and letters were written. The activist group threatened a citywide boycott of Rogers' products and services. They questioned Industry Canada's lack of public consultation. The Green Party of Canada weighed in with its support for the activists and issued a statement that Health Canada's safety guidelines were inadequate. From February 27th, 2009, until May 11th, 2009, correspondence continued between the City and Rogers. It became evident that the tower would be built; all that remained was how it would be done. These communiqués continued until 4:30 p.m. on the afternoon of May 11th, 2009. At 6:45 a.m. earlier that day, neighbors to the cell tower site were awakened by the rumble of heavy equipment rolling down the lane to the proposed site of the tower. Construction had begun and without notice to the City. On May 12th, the City issued a "Stop Work Order" to Rogers and to two contractors engaged in the work (Stop Work Order, May 12, 2009). On that same day, 50 residents demonstrated near the entrance to the Eastlink property where Rogers had started work. The police attended, at the behest of Eastlink. Discussions between police and the demonstrators followed. No violence ensued and matters were resolved peacefully.

Rogers' obtained a response from the PEI Supreme Court on May 14th, an ex parte application (that is, without notice to anyone else), an injunction to prevent "Persons Unknown" from interfering with access to the work site and to remain not less than 15 feet away from the entrance when access was required (PEI Supreme Court Order, May 14, 2009). On May 14th, the City rescinded its "Stop Work Order" and issued to Rogers the building permit it had requested on October 23rd, 2006.

On June 3rd, an appeal was filed by a principal activist in the community group, whose property was adjacent to the tower, with the Island Regulatory and Appeals Commission pursuant to s. 28 of the Planning Act questioning the propriety of the City's issue of a building permit and requesting certain remedies if such were found to be appropriate (Notice of Appeal, June 3, 2009). Rogers Wireless, the City of Charlottetown and the activist community all filed briefs on the issue and offered rebuttals to the other parties' briefs. The appeal to IRAC was denied in the fall of 2009.

The Telecommunications Industry and Rogers Wireless

The deregulation of the telecommunications industry in Canada has presented local governments with challenges and opportunities. In particular, the tremendous growth in wireless providers and corresponding infrastructure has brought technological and economic efficiencies as well as new concerns about public health and safety, property values, and aesthetic considerations.

Rogers Communication Inc. (RCI) was founded in 1925 by Edward Rogers, Sr. Edward Rogers, Jr. (Ted) Rogers grew the company since the 1960s up to the time of his death in 2008. In 1979, Rogers Cable became the largest Canadian public cable company. In 1985, Rogers entered the mobile phone market. RCI is a publicly traded company comprised of Rogers Wireless, Rogers Cable and Telecom, and Rogers Media. RCI is also the owner of the Toronto Skydome, renamed the Rogers Centre in 2005, and the Toronto Blue Jays. Since 2000, Rogers has acquired cable operations in various parts of Atlantic Canada and has formed a partnership with Eastlink Communications. In 2009, Rogers Communications had revenue of \$11.87 million. Over half of this came from wireless and this number is growing. Rogers Wireless is currently Canada's largest wireless carrier with 8.5 million subscribers (www.rogers.com, n.d.).

On its website, Rogers describes the various ways that the company "connects" with its communities through outreach and corporate contributions. There is a special emphasis on work they do with youth and children (Rogers-Community Support, n.d.). Rogers is also listed on the Jantzi Social Index which includes Canadian companies that meet a set of broad-based environmental, social and governance criteria.

The Concerns of the Citizens

Not until Industry Canada sided with Rogers Wireless was Charlottetown's activist community required to mobilize and respond to the corporate-government nexus. The concerns of the neighborhood citizens are related to personal health and safety, the legal rights of community citizens, financial risks to homeowners, and integrity of the natural environment. Most of these people have lived in the area for over thirty years. Some of these homes were granted to retired soldiers through the Director of the *Veterans Land Act*, in recognition of military service. These residents now consider that their land is being expropriated by the same government of Canada on behalf of a corporate enterprise (personal communication with Catherine Mullally, July 2009). These people are alarmed at a large corporation gaining support from the Canadian government to sweep aside a legal land-use decision made in good faith by a unanimous vote of the Mayor and Council of the City of Charlottetown. Industry Canada has erased the prerogative of the elected City administration and the concerned citizens (Letter of Shawn Murphy, M.P. to Minister of Industry, Tony Clement, March 18, 2009 and Letter of Senator Downe to Minister of Industry, June 23, 2009).

According to the activist group, the issue presents two problems for authorities to consider. Firstly, the residents whose homes lie within the dangerous range of the radiation perimeter have had their property expropriated by the federal government without compensation. Secondly, municipal governments have statutory obligations to fulfill, free from corporate-inspired bureaucratic interference (Personal Communication with Philip Mullally, July 2009). One conundrum the activist group is struggling with is that the more the issue is publicized the greater detriment to future assessment values. The public sentiment seems to be that encroachment of corporations into residential areas has been justified based on the elimination of "dropped calls" and greater competition leading to cheaper rates. The costs of abatement in the frame of environmental economics are soon forgotten or ignored. The public fails to realize that the convenience and economy gained comes at the expense of present and future costs with regards to physical and financial health of their fellow citizens.

Like so many slowly evolving environmental and health issues, scientific uncertainty is issued as a justification for the loosely regulated wireless industry in both Canada and the United States. However, Europe and other parts of the world have significantly more stringent standards. The Bio-Initiative Report, tabled to and approved by 569 of 581 voting EU members, advises wide ranging restrictions on the advance of wireless technology (www.ElectromagneticHealth.org, accessed July 21, 2010). CBC's Wendy Mesley, on the current affairs television show, *Marketplace*, described the dangers of wireless technology for children and the passivity of society amid heavy manipulative marketing. Although there remains uncertain inconclusive scientific evidence, an increasing number of studies suggest that low-frequency waves coming from cell towers have subtle biological effects and may reduce fertility, damage DNA, and cause cancer. Many countries including Germany, France, Russia, India, Belgium and Finland recommend limited cell phone access for children, but the United States and Canada do not (www.ElectromagneticHealth.org, accessed July 21, 2010). The National Academy of Science has called for more research on risks on long-term exposure to children and pregnant women (www.nap.edu/catalog/12036.html)(see also www.wirelesswatchblog.com).

On June 30, 2009, The National Institute for Science, Law and Public Policy delivered a report on the health hazards of wireless technology to Governors, Congress, President Obama and his administration, as well as to thousands of health and environmental journalists. The report warns of the dangers of microwave radiation exposure from cell phones, neighborhood antennas, and wireless networks. It reviews independent science on the health hazards of wireless radiation and offers recommendations for safer living in a wireless world. According to the report, public health officials and advocacy groups around the world are concerned about symptoms associated with rising levels of electro-magnetic radiation or radio frequency (EMF), particularly in proximity to cell phone towers.

Health Canada’s Safety Code 6 allows exposure to EMF that is 10,000 times stronger than governing bodies in Europe allow (Health Canada, n.d.). **Health Canada** established Safety Code 6 in 1999 but it has not been amended since that time. This code is based on preventing damage to human tissue due to the well-understood heating effects of radio frequency thermal effects, which are short-term thermal effects. Health Canada has not conducted research into the long-term effects of continued exposure to non-thermal rates of radiation, the type of radiation to be emitted by the Rogers tower. Canadian opponents to cell towers cannot legally plead their case because Health Canada regulations, specifically Safety Code 6, are not violated by what Rogers Wireless and other telecom companies continue to do.

Table 1 provides a timeline of the relevant context and events of the case.

Table 1 Timeline of Events

Date	Event
1925	Founding of Rogers company by Edward Rogers, Sr
1979	Under Edward (Ted) Rogers, Jr., Rogers Cable becomes the largest Canadian public cable company
1985	Rogers enters the mobile phone market
2004	EastLink and Rogers sign agreement to bring wireless services to EastLink bundle customers
Oct. 2006	Rogers Wireless applies to City of Charlottetown for permit to build cell tower on land purchased from Eastlink
Mar. 2007	City Council begins public consultation on issue
Apr. 2007	Rogers and Industry Canada and concerned citizens invited to session; expert witness on negative health impacts of EMR speak
May 2007	City Council unanimously passes a resolution to reject request that the Zoning and Development Bylaw be amended to permit construction of the cell tower
June 2007	Rogers’ counsel requests reconsideration of decision
July 2007	City Council unanimously rejects Rogers’ request
Feb. 2009	Industry Canada advises the City that it had approved the construction and had advised Rogers that it could proceed
Feb -May 2009	Correspondence continues between the City and Rogers
May 2009	Construction begins; City Council rescinds its “Stop Work Order” and issues the building permit under coercion from Industry Canada
June 2009	Appeal filed by a principal activist in the community group with the Island Regulatory and Appeals Commission (IRAC)
Sept. 2009	Appeal to IRAC denied

Analysis

It seemed that from the company’s perspective, there was a narrow set of stakeholders; however for purposes of our analysis, we viewed the focal stakeholders as Rogers Wireless, the local community of Sherwood/the activist group, the Federal Government (Industry Canada), and the Municipal Government. Secondary stakeholders include the provincial government, the Congregation of the Sisters of Saint Martha (who own 40 acres adjacent to the cell tower site) and the natural environment. The Provincial

Government's response was limited. Any letters from the activist group calling for support were referred to the concerned department; subsequent statements indicated that the Province was not in a position to object as all applications from Rogers fell within Federal regulations. A former Provincial Minister of Health, Chester Gillan, who lives in the affected area, attended meetings and offered support. The current minister of Education, Doug Currie, also living in the area, was asked to attend a public demonstration but was unable to do so due to personal reasons. Current and former provincial governments have avoided direct involvement as a separate stakeholder and have maintained alignment with Federal Government policy.

Our analysis begins by applying Mitchell et al.'s (1997) framework to assess the salience of the focal stakeholders in this case.

Power of Community of Sherwood

The community had some power, but it was rather limited. In the tradition of Canadian democratic experience, local government has been seen to be more attuned to the immediate needs and concerns of its citizens. Hence, the power of community has historically been high in PEI. The community had little utilitarian power as their financial resources were miniscule compared to a giant telecommunications company. Their political power, although closely aligned with the Municipal Government, was no match for the power of Rogers once they gained the support of the Federal Government. Media related power was also limited as there was little coverage by the PEI newspaper, *The Guardian*. A June 2, 2009 article reported on the building of the tower and referred to "vigorous protest" from "*a group*" (theguardian.pe.ca, authors' italics). Once the decision was made to allow the tower to be built, the local community was excluded from the planning process. This further indicates the company discounting any power that the community held.

Legitimacy of Community of Sherwood

The expected societal costs of the cell tower include the negative impacts of EMR on human health and wellbeing and the market value of homes in the community. The activists mobilized experts to speak on these negative consequences. The growing scientific evidence of negative health impacts of EMR especially in Europe's scientific community provides additional sources of legitimacy for the community. In the tradition of Canadian democratic experience, local government has been seen to be more attuned to the immediate needs and concerns of its citizens. The community believes the Federal Government has overstepped the authority of the local government and questions its authority in doing so. When asked in the House of Commons about his decision, Industry Minister, Tony Clement, stated that the concerns of the community "were not valid." In the end, the activist community became "a demanding stakeholder" with no legitimate claim.

Power and Legitimacy of Rogers Wireless

As mentioned above, Rogers Wireless is a division of a giant telecommunications company with huge financial resources. The Rogers brand is well recognized in Canada. Rogers gained considerable power once they formed a coalition with Industry Canada. The literature and media, including Rogers' corporate communications, are full of examples of the benefits of modern telecommunication infrastructure initiatives. Expected societal benefits include more and better wireless access, economic spin-offs, e-commerce, telemedicine, improved security, etc. From the industry's perspective, cell phones and cell towers are necessary and considered safe and benevolent technology. Growth is simply a response to customer demand. In this case, legitimacy was further exhibited through the unified front between the federal level of government and the company. Although Canadian guidelines are outdated and irrelevant to non-thermal radiation effects, the company is able to claim that they are compliant to relevant health and safety laws and regulations.

Urgency of Local Community

The community and in particular the activist group and the Mount Edward Road community exhibited extreme urgency when faced with the impending health and financial impacts on their community from the cell tower.

Salience of Industry Canada

The Federal Government (Industry Canada) de facto exhibited all attributes of a salient stakeholder. It exhibited power, as Industry Canada ultimately decided that the tower would go ahead. Industry Canada sided with Rogers Wireless despite reasoning from scientific experts and legal tradition. It exhibited urgency in the way that the building of the tower was expedited and bypassed.

Table 2
Application of Mitchell, Agle, and Wood’s (1997) Stakeholder Framework

Stakeholder	Power	Legitimacy	Urgency
Municipal government	From H to L	From H to M	From H to L
Industry Canada	From n/a to H	From n/a to H	From n/a to H
Local community	L (M)	M (H)	H (H)
Provincial Government	MIA	MIA	MIA
Local community & Municipal Government	From H to L	From H to M	From H to M
Rogers Wireless & Industry Canada	From L to H	From M to H	H (H)

In parentheses: theorized attributes

The citizens group is therefore categorized as either a latent-demanding stakeholder or an expectant-dependent stakeholder. From the company’s perspective, the company appeared to be considered as a latent demanding stakeholder, if that. There was no consultation process on the part of Rogers Wireless once the decision to allow the tower was made. Their insistence in constructing the tower consisted of few attempts to inform and little communication of their intents once their initial application was turned down. The sole stakeholder they contacted once their application was denied at the municipal level was Industry Canada.

The opponents to the Rogers cell tower did not gain allies among enough other powerful stakeholders. The provincial government, the local university and other silent citizens could have weighed in with their support. Their silence is a vote of tacit support for Rogers Wireless.

Discussion and Implications

Normative stakeholder theory has evolved to a point whereby corporations are expected to consider, if not meet, the demands of multiple stakeholders. However, our analysis leads us to conclude that an instrumental stakeholder management approach was conducted by the company in this case. The conflict between the community and Rogers Wireless became what Berry (2003) describes as a dyadic perpetrator-victim scenario, a relationship with winners and losers. Moreover, Burke’s (1999) assumption

that the uncaring or disrespectful corporation will be disciplined through government intervention and other social or regulatory constraints does not apply in this case. Rather, the Federal Government supported the necessity of increased wireless coverage over health and property concerns of local citizens. To date, the course of events has demonstrated that the interests of modern convenience for Rogers Wireless, its customers, and shareholders trump the medical, legal, financial and personal interests of the community stakeholders opposed to the cell tower. There seems to be an imbalance between the economic imperative and both short- and long-term health and well-being impacts of the decision on the local citizens, society, and the natural environment. In other words, a particular set of salient stakeholders has been reinforced because managers have been trained and encouraged to prioritize economic indicators and shareholder issues. In this case, the economic and technological imperatives override community development.

Vogel (2010) has argued that voluntary business regulation in many industries is overly limited and that there is a need for both national and international levels of regulation to address corporate conduct. Health Canada has regulations that all Canadian communities are to follow but, tragically, their “current information” is a decade behind what is understood by many scientists around the world.

This case is particularly complex due to the institutional aspects of having different government levels involved. We can only speculate on the opportunistic political actions between the three levels of government. The Provincial Government was essentially missing in action. In the end, the Canadian Federal Government had veto power. Because this is a single case-based analysis, we cannot necessarily generalize our findings. Our analysis and discussion is based on a particular firm, a particular industry, and a particular local context. A different province or a different community may have faced different institutional and political impacts. Future research is needed to compare and contrast results across different firms, industries, and geographical, cultural, and institutional contexts.

Other scholars have advanced stakeholder theory by recognizing the multilateral and dynamic nature of stakeholder-firm relations and by describing the socially constructed nature of stakeholder attributes (e.g., Driscoll & Crombie, 2001; Frooman, 1999; Mitchell et al., 1997; Rowley, 1997). The case provides some evidence of stakeholder dynamism in that there were changes in the preferences, attitudes, and salience of some of the stakeholders at various points in time. In particular, it was evident that the local community and the Municipal Government lost salience over time.

The case also illustrates the importance of context in company-stakeholder relationships. Local governments have typically been responsible for zoning and land use decisions in PEI and most parts of Canada. Industry Canada overstepping the local government was precedent-setting in this sense. As Senator Percy Downe stated (Letter to Industry Minister, June 23, 2009), “This is more than a local issue; it has serious ramifications for communities across Canada.” Pettigrew (1992) suggested that history shapes stakeholder relationships. Perhaps in the past this community had no need for forming allegiances with other more powerful stakeholders because the local government had more power and authority.

Revisiting Power, Legitimacy, and Urgency

Stakeholder literature (e.g., Frooman, 1999; Randel, Jaussi, & Standifird, 2009) continues to emphasize power, legitimacy, and urgency as the primary determinants of stakeholder influence. Others have criticized Mitchell et al.’s salience model for failing to acknowledge the role of dependent stakeholders (Calton & Payne, 2003; Driscoll & Crombie, 2001). Moreover, definitions associated with these three constructs and their corresponding bases are inadequate for incorporating the near and the far, the short- and the long-term, and the actual and the potential. Driscoll & Starik (2004) suggest proximity as an additional attribute that theoretically could influence stakeholder salience. The proximity of organizations to various stakeholders establishes a stakeholder connection between the two since these

entities continually affect one another in the physical world. For example, Rogers Wireless has become painfully proximate to the Community of Sherwood.

The influence of electromagnetic radiation from cell phones and cell towers, especially the subtle influence over time, would be overlooked in most conceptualizations of stakeholder power and urgency. Although human risks associated with critical and chronic long-term environmental problems are becoming increasingly tangible, salience is still lacking regarding “slowly evolving issues,” where the impact on humans is not as obvious and scientific certainty is lacking. As scientific evidence increases and fills more of these gaps in our knowledge, ignorance and scientific uncertainty can no longer be used as excuses for denial or inaction.

We suggest that the limited conceptions of power that continue to dominate stakeholder thought and practice are a powerful blinder to recognizing the importance of many legitimate stakeholders. Mitchell et al. (1997:879) suggest that stakeholders can increase their salience if they are clever at “coalition building, political action, or social construction of reality.” The case of Rogers Wireless and the Community of Sherwood provides further evidence of how legitimacy and urgency are often coupled with power. In an alternate paradigm, power can be “gained through the emergence of collaborative assemblies, interdependent domains, and cooperative networks” (Purser, Park, & Montuori, 1995: 1080). For example, under an eco-sustainability paradigm (e.g., Shrivastava, 1995), the focus is on both current and future generations and both the short- and the long-term impact of managerial decisions.

Stakeholder salience models are not currently sufficient for understanding stakeholder relationships in different types of contexts. As mentioned earlier, the firm-stakeholder relationship has been theorized to be relational rather than just transactional or exchange-based (Freeman & Liedtka, 1997); however in this case there almost seemed to be no relationship at all between the company and the community. There was no acknowledgment by the company that the community as a stakeholder had taken on substantial risk. In other words, there was no “deep stakeholder engagement” (Crane & Livesay, 2003). Even if risks are potential, perceived, or unproven, the health and wellbeing of citizens related to anxiety and/or frustration with the planning process should be considered in all company-community relationships.

The Activist Community and Environmental Justice

Although the activist community is identified as a stakeholder, its power was too low to give it salience with regards to Rogers or Industry Canada. An active community group can only make significant claims when it forms allegiances or, as Zietsma & Winn (2008) report, creates influences chains with likeminded stakeholders. It is ultimately required that stakeholders “find a way to work with their opponents, whom they neither understand nor trust” (p. 74). So while alliances with other secondary stakeholders must be made, the goals of the activist community are seldom achieved without a consolidated effort of different kinds of stakeholders.

Environmental justice is an underlying reason that the activist community organized. The environmental justice literature has shown how particular communities suffer more harm as risks related to environmental factors are externalized to them (e.g., Agyeman, 2005). Current gaps in knowledge and limits to understanding risks related to EMR have led our counterparts in Europe to adopt a more precautionary approach whereby regulatory bodies apply much lower standards of proof. Environmental justice requires that power be divested from corporations and governments when the health of citizens is at risk. Unfortunately, it has taken health and environmental catastrophes brought on by big oil, big tobacco and other industries to demonstrate that human, animal and plant existence deserves fair consideration when balanced against corporate interests. As Berry (2003:10) asserts, paradigms must be shifted to restructure power, decrease government and corporate control and allow a sustainable growth process.

Conclusions

This case has highlighted the conflicting legitimacies of small community and large company, of technological-economic priorities and health-wellbeing priorities. It raises the question: who should ultimately have responsibility for balancing community and industry priorities and concerns? Scholars and practitioners need to acknowledge the limitations to current managerial conceptualizations of power, legitimacy, and urgency as the primary attributes used to determine stakeholder salience. Normative stakeholder theory should emphasize the question of who 'should' have power and legitimacy. As small communities and other dependent and demanding stakeholders continue to be rear-ended by corporations, organizational scholars have a role to play in changing the rules of the road or at least in helping to build some better bumpers. The way that organizational researchers frame issues, such as stakeholders and stakeholder attributes, will guide stakeholder management, management education and training, and future research on the topic.

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Strategy – Strategie

ASB 2010
Halifax, Nova Scotia

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A MATRIX, A TABLE AND A BRIDGE: STRUCTURING ALTERNATIVE FORMULATION AND EVALUATION WITHIN THE STRATEGIC POSITIONING FRAMEWORK

Between the processes of strategic analysis and strategic implementation, are the critical but unstructured tasks of strategic alternative development and evaluation. This paper structures the process of creating alternative business strategies from a Porterian approach to strategic management by bounding the available choice of business strategies in a selection matrix. Through the creation of this alternative selection matrix, sixteen categories of business strategy are defined. Two methods for developing alternative strategies among these bounded choices are detailed and discussed. A decision table is then offered as a means of evaluating among the potential strategic alternatives.

The value of strategic management lies not just in the design of grand strategies, but in their successful implementation. And while emergent strategies (Mintzberg and Waters, 1985) represent necessary adaptation to changing business conditions, unrealized strategies – those that are designed but never implemented – waste organizational effort and call into question the analytical, managerial and tactical abilities of the firm. In contrast, deliberate strategies that are effectively realized, and which provide a sustainable competitive advantage to the firm, are suggestive of greater business prowess. The difficulty is that to achieve such proficiency in strategic management capabilities, the firm needs to excel at three distinct activities: strategic analysis of the firm and its environment; formulating and evaluating strategic alternatives; and implementing the chosen strategy efficiently and effectively. While much has been written on strategic analysis and strategic implementation, the process of defining business alternatives remains vague and unstructured within the strategic positioning framework. In response, this paper systematically structures the process of delineating and assessing alternative business strategies in a manner consistent with the extant literature.

We begin by discussing the development and evaluation of strategies alternatives, which link the analysis of the firm to the implementation of a chosen strategy. A review of the literature

reveals that sixteen business strategy archetypes may be derived; these represent the full range of strategic choices available to any organization. These archetypes are then placed in a selection matrix that serves as a taxonomy of strategic alternatives. Methods of developing strategies from the selection matrix are explained using either deductive or inductive logic. This results in a number of potentially viable strategic alternatives which may subsequently be evaluated using a weighted average decision table. This secondary matrix produces the intended, deliberate strategic direction for the firm: an opportunity to realize their intended business strategy. Together, these two matrices act as a bridge between the analysis of the firm and the implementation of a chosen business strategy. As a result of this process, practitioners of business strategy benefit from a clearly delineated and well structured strategic alternative formulation and evaluation methodology. Academics also benefit from a consistent means of strategy identification and labelling that will facilitate comparative strategic studies.

Context

Within the strategy literature, there exists much clarity as to the process of strategic analysis. There is a general consensus as to the need to conduct an internal analysis of the firm, and an external analysis of the industry in which it operates, to identify and resolve gaps between the two environments (Andrews, 1972; Christensen, Andrews, and Bower, 1973; Porter, 1980, 1985). Disagreements persist in terms of the most appropriate methods of analysis – such as SWOT analysis (Andrews, 1971; Christensen et. al., 1973), value chain and five forces analysis (Porter, 1980, 1985) and more recent advances in the literature, such as resource-based (Wernerfelt, 1984; Barney, 1991, 2001) and stakeholder-focused alternatives (Freeman, 1984; Wheeler and Sillanpää, 1997). Despite these differences, Porter's strategic positioning framework remains the most pervasive, from a teaching perspective, as evidenced by the literature (Thompson, Strickland and Gamble, 2007; Dess, Lumpkin, Eisner and Peridis, 2009; David, 2011).

It is this Porterian approach to strategic management that is the focus of this paper, an approach that is primarily concerned with two key tasks: designing effective business strategies that will achieve defensible market positions, and efficiently implementing the chosen strategy (Porter, 1980, 1985). At the nexus of these activities are well considered strategic alternatives; they bridge the gap between what is possible and what will eventually be adopted. However, while the strategic positioning framework of Michael Porter remains the dominant theoretical approach to strategic alternative formulation (Hill, 1988; Murray, 1988; Campbell-Hunt, 2000), this approach is ambiguous as to a specific process whereby alternatives can be systematically formulated following the use of analytical tools such as a value chain and five forces analyses. The theory can therefore be enhanced with the addition of a methodology for developing potentially viable strategic alternatives and a means for deciding among them. Such a contribution brings greater prescriptive clarity to the processes of developing and evaluating strategic alternatives. This paper also suggests a role for both deductive and inductive logic in order to identify the most desirable among the strategic archetypes available to the firm. This novel approach emphasises the analytical nature of strategic alternative formulation and evaluation processes, which are distinct and separate, both from the process of analysing the firm and its environment, and from the process of implementing business strategy.

Bounding the Choice of Strategic Alternatives within a Selection Matrix

In his contributions to the field of strategic management, Michael Porter bounded the choice of strategic alternatives from a positioning perspective (1980, 1985). He noted that “the best strategy for a given firm is ultimately a unique construction reflecting its particular circumstances. However, at the broadest level we can identify three internally consistent generic strategies... for creating such a defensible position in the long run and outperforming competitors in an industry” (1980, 34). These generic strategies consisted of a cost leadership alternative; a differentiation alternative; and a focus or niche alternative, this final one being further sub-divided into focused cost leadership and focused differentiation. The choice among these alternatives is influenced by a strategic analysis of industry factors commonly referred to as his five forces analysis: rivalry among firms; the threat of substitutes; the threat of new entrants; supplier power; and buyer power. Porter adds that the choice among these alternatives implies tactical implications.

Due to tactical differences in how these strategies are implemented, Porter states that management must choose among these strategies, rather than to combine them into one. “Each generic strategy is a fundamentally different approach to creating and sustaining a competitive advantage,” he suggests (1985, 17). The choice of generic strategies affects the tactical use of resources and skills which constrain the ability to adopt more than one of these alternatives at a time (1980, 35, 40-44). Porter argues that “the generic strategies also imply different organizational arrangements, control procedures, and incentive systems” which further detract from the ability to pursue multiple generic strategies simultaneously (1980, 40). Therefore, the value of information produced from an analysis of the internal and external environment of the firm is, to a large degree, reflected in the extent to which it enables the pursuit of one of these generic strategies over any other of the possibilities.

A Porterian analysis is incomplete without consideration of one additional aspect: the firm’s choice of strategic business decisions. Porter identified four fundamental business decisions, each of which represents a major strategic direction for the firm within an industry: vertical integration; capacity expansion; new business entry; and divestment (1980, 299-357) . These decisions are separate from, but are related to, the tactical activities management undertakes to implement a chosen generic strategy. Whereas tactical choices along the value chain deepen the extent to which a strategy is implemented by the firm, strategic business decisions extend the breadth of managerial action; it provides momentum and direction for waging offensive or defensive action against rivals within an industry. The addition of a particular strategic business decision to a selected generic strategy gives life to management’s choice of competitive strategy.

The range of business strategies is therefore bounded by these two elements of strategic management: a combination of one of Porter’s grand strategies with one of Porter’s strategic business decisions. As there are four grand strategies that may individually and distinctly be combined with the four strategic business decisions, a total of sixteen archetypes of business

strategy may be defined. The result of combining Porter’s generic strategies with his strategic business decisions may be visualized in a matrix which integrates these strategic possibilities, as shown in Table 1.

Table 1

A Selection Matrix of Business Level Strategic Archetypes

Generic Strategies	Strategic Business Decisions			
	Vertical Integration	Capacity Expansion	New Business Entry	Divestment
Cost Leadership	CL • VI	CL • CE	CL • NBE	CL • DI
Differentiation	D • VI	D • CE	D • NBE	D • DI
Focused Cost Leadership	FCL • VI	FCL • CE	FCL • NBE	FCL • DI
Focused Differentiation	FD • VI	FD • CE	FD • NBE	FD • DI

A key benefit of this matrix is that it gives an extrinsic purpose to our strategic analysis process. Aside from the intrinsic benefits derived from an internal and an external analysis of the firm, this analytical process facilitates the selection among these strategic archetypes of those that are likely to be of the greatest benefit to the firm. The firm may leverage their strategic analysis to focus in on preferred archetypes by using deductive logic in the selection process. Conversely, strategic analysis can also serve to eliminate potential strategic archetypes from further consideration, leaving those archetypes that remain as the inductively-derived focus of our strategic alternatives. These two approaches to selecting among the various strategic archetypes – through the use of deductive or inductive logic – are now discussed.

Deductive Approaches to Selecting Porterian-based Strategic Alternatives

The selection of strategic alternatives typically employs a deductive approach based upon a clear analytical process. Information about the firm and the industry is collected and analyzed, a process made more efficient and effective when a framework is in place to systematize the effort (Porter, 1980, 368-369). Analysis moves from the general to the specific and is optimal when sufficient information exists to enable the selection of a specific element from within the matrix of business strategies from whence to develop strategic alternatives. The matrix as

developed above facilitates this task by clarifying the range of potential strategic alternatives. Accordingly, the more detailed and accurate the analysis, the more precisely one may specify an element from within the strategic matrix. Strategic alternatives may then be developed that share a common strategic emphasis – the same archetype from the matrix – while differing in tactical implications.

When in the course of performing a strategic analysis, extensive data collection concerning the firm, rivals in the industry, and prevailing industry conditions, is essential. Recent writing on the formulation of strategic alternatives illustrates this; Kajanus (2000) articulating more clearly than most a process for converting ideas originating from a strategic analysis into strategic alternatives. However, the pan-theoretical approach employed by Kajanus lacks a bounded set of choices for business strategy. This lack of bounded choice among a finite array of strategic archetypes maintains the mysterious air from which alternatives are presently created: it remains an overtly subjective, inferential process even though some deductive logic is applied. The strategic matrix offered in Table 1 addresses this weakness from a Porterian perspective, through the use of deductive reasoning and the bounded nature of the matrix. When complete and certain information is available, the key variables and their values are all understood, and the process of analysis is clear, the optimal strategic archetype may be readily identified.

Yet there are situations in which the strategic variables are known yet their values are not. Thus we are aware of the factors to consider, but not their current state or necessarily the extent of their impact upon our own decision making. Due to information uncertainty, it thus may not be possible to narrow alternative selection to a single element of the matrix, even when the process of analysis is clear and the variables are known. In such cases, limited information may still be sufficient to eliminate from further consideration particular strategic archetypes. For example, if the customer needs in a particular industry have a high degree of homogeneity with the product offerings of the firm and their rivals, it will prove difficult for managers of the firm to identify and isolate a market segment in order to pursue a focused cost leadership or a focused differentiation strategy. Accordingly, eight of these sixteen strategic archetypes can be eliminated from further consideration. If the firm has a profitable and sustainable market position in the industry, we may reasonably expect the firm's managers to abandon any notion of divestment, or at the very least, constrain it to aspects of outsourcing. Abandoning divestment strategies reduces the choice among strategic archetypes from eight down to six possibilities. If the firm has a particular skill competency in new product development, significant resources invested in research and development, or is a market leader in industry innovation, then a cost leadership strategy is less attractive than a differentiation approach because financial support of these expensive cost centres is contrary to the effective implementation of cost leadership strategies. The firm has three archetypes remaining in the matrix from which strategic alternatives may emerge: mass differentiation combined with vertical integration, capacity expansion, or new business entry. Prior to proceeding with the next step in the development and selection of strategic alternatives, the firm should precisely define the specific tactical features and activities associated with each of these remaining potential strategic archetypes.

Inductive Approaches to Selecting Porterian-based Strategic Alternatives

There may be occasions when the use of inductive selection is more appropriate, or more desired, than the more commonly employed deductive approach. A lack of available information may impede the ability to deduce among the sixteen strategic archetypes as to the optimal one to pursue. In this situation, inductive logic is used to finish what began as a deductive process. Alternatively, there may be situations where inductive reasoning with the selection matrix is used in lieu of deductive reasoning. Situations involving extensive information ambiguity, wherein the viability of deductive reasoning is either very limited or not at all possible, are a likely example. New ventures, attempted turnarounds of bankrupt firms, and other scenarios where the firm lacks either an established strategy or one bearing the hallmark of success, are well-suited for the use of inductive strategy using the matrix of sixteen strategic choices. In such situations, there is either insufficient market or firm level information to enable the use of a deductive approach to business strategy, or when present, the information pertains to past strategies that failed. Accordingly, rather than use the matrix as a tool to move from the general to the specific, we may invert its use to move from the specific to the more general.

An inductive use of the matrix involves selecting one among the sixteen archetypes of business strategy and then identifying the characteristics attributable to that selection. The strategic choice under evaluation is then compared to the known aspects of the firm and its market(s), or in the absence of this known information, the organizational goals and objectives that have been established but not yet achieved. If the evaluated strategy is consistent with the current or desired future state of the firm, then it represents a potentially viable strategic archetype for the firm; if there is inconsistency, then the evaluated archetype is no longer considered. This process is repeated with the remaining archetypes until each has been evaluated in terms of its viability. At the conclusion of this process, one or more potential strategic archetypes may have been identified. The next step is to employ a weighted average decision table to select among the range of potential strategic archetypes.

A constraint on the use of inductive reasoning is that such a process may produce a plurality of potential strategies, each of which may produce viable outcomes and desirable benefits for the firm, as Murray (1988) notes that factors which support a particular generic strategy are not mutually exclusive to that strategy. This raises the issue of strategic equifinality, where differing choices among these sixteen alternatives may produce equivalent outcomes for the firm (Miles and Snow, 1978; Porter, 1980; Hambrick, 2003; Marlin, Ketchen and Lamont, 2007), as well as strategic combinatorials, where combinations of these sixteen archetypes can produce more sophisticated strategies; this is in direct contrast to Porter's assertion of an either/or choice among generic strategies. To summarize, the inductive approach is best used in managing situations with a high degree of information uncertainty.

A Decision Table for Evaluating Among Strategic Alternatives

Whether through deductive or inductive approaches, the selection among the remaining, strategic archetypes needs to be resolved. We begin by building out one or more business-level alternatives for each of the strategic archetypes under consideration. Goals and objectives are defined; key tactics and implementation tasks are identified; human and capital resource requirements are assessed; and timelines for implementation are estimated. Thus, while three

strategic archetypes may remain under consideration, a firm may have more than three strategic alternatives under evaluation, as there are multiple ways to manifest a strategic archetype into a strategic business alternative. Now that these strategic archetypes have been outlined into potentially viable business alternatives, a weighted average decision table is next employed to evaluate among the various strategic business alternatives (see Table 2).

Adapting the use of such a decision table from Basadur's (1994) work on unstructured problem solving, we invoke a matrix which employs criteria relevant to the firm and the industry in which it operates in order to choose among the remaining archetypes. The first column contains all of the criteria through which we may evaluate the alternatives. The next column contains the weighting for each criterion based upon management's assessment of their relative importance. Subsequent columns each contain the business alternatives under consideration, noting that among the four alternatives, there are three strategic archetypes represented; Alternatives 1 and 2 share the same archetypes but manifest that archetype in different ways. Evaluating one criterion at a time, each alternative is evaluated on a firm selected, pre-determined quantitative scale.

The scale itself must possess certain characteristics. First, it must be numeric in order to facilitate quantitative analysis. The top and bottom numeric limits of the scale should be the same for each criterion, e.g. a scale of "1" to "10". Further, the definition of a scale for each criterion should be done in a manner such that there is logical consistency across scales, e.g. if a ranking of "10" for one scale is positive from the firm's perspective, than all scales should be crafted such that "10" is a positive outcome for the other criteria as well. The evaluation of each alternative, according to each criterion, may then be entered into each blank cell of the matrix. These may then be multiplied by the relative weighting, and these weighted evaluations may then be summarized at the bottom of the table. While a sample decision table is illustrated in Table 2, it should be noted that the number of criteria and the number of evaluated strategies can vary, and are not constrained to the number shown below.

A choice exists as to whether the business alternatives are evaluated on an absolute or a relative basis to one another. If measured on an absolute basis, each alternative is judged independently of one another; thus, two or more alternatives may receive the same ranking for a given criterion. In contrast, the use of a relative scale involves comparing each alternative to the others, in order to ensure a unique ranking for each alternative on each criterion in the decision table. It is noteworthy that the use of an absolute scale for each criterion will lead to closer total scores among the alternatives than the use of a relative scale.

Table 2 illustrates a sample decision table. Each criterion is rated on a ten point relative scale, with "10" being the most desirable evaluation. Therefore, in this example, the alternative with the highest total score will be the one that is optimal for the firm, given the choice and relative weighting of the criteria. Alternative #3 - an alternative based upon mass market differentiation combined with new business entry - is the preferred choice as indicated by its highest total score. If the characteristics of the now recommended alternative have not been fully fleshed out - or there are multiple potential implementations of the chosen strategy, then an additional decision table may be created that repeats the evaluation using the same criteria but with more specifically defined alternatives, all of which share the same basic strategic

classification – e.g. competing implementations of a mass market differentiation, new business entry-based strategy.

Table 2

A Decision Table for Selecting Among Competing Alternatives

Strategic Alternatives		Alternative #1		Alternative #2		Alternative #3		Alternative #4	
Strategic Archetypes		D • VI		D • VI		D • NBE		D • CE	
Criteria	Relative Weighting	Nominal Score	Weighted Score	Nominal Score	Weighted Score	Nominal Score	Weighted Score	Nominal Score	Weighted Score
Criterion 1	10%	5	0.50	7	0.70	8	0.80	6	0.60
Criterion 2	25%	7	1.75	8	2.00	6	1.50	5	1.25
Criterion 3	22%	4	0.88	7	1.54	5	1.10	6	1.32
Criterion 4	18%	9	1/62	7	1.26	8	1.44	6	1.08
Criterion 5	25%	10	2.5	8	2.00	7	1.75	9	2.25
Total	100%	7.25		6.59		7.50		6.50	
Results		Second best alternative		Third best alternative		Best alternative		Fourth best alternative	

Contributions

In establishing two matrices to address the issues of strategic formulation and evaluation, this paper provides a bridge between the more documented activities of strategic analysis and strategic implementation. For practitioners, the selection matrix of business level strategic

archetypes provides prescriptive guidance to identifying the most desirable strategic archetypes to pursue. It also nurtures the development of these archetypes into business alternatives which leverage the value of the strategic analysis to the benefit of the firm. Practitioners also benefit from the inclusion of a weighted average decision table; this provides a useful method for evaluating among competing alternative business strategies and facilitates comparisons within and across strategic archetypes. Taken together, the selection matrix and the decision table provide a systematic process for the formulation and evaluation of business level strategies that bridge the gap between strategic analysis and strategic implementation.

For academic researchers, this paper makes a number of contributions to the literature. It establishes a taxonomy of business level strategic choice by bounding the array of strategies in a manner consistent with the literature. This taxonomy facilitates the consistent identification and classification of strategies according to their Porterian archetypes. As a consequence, researchers can better compare and contrast various strategies encountered through field research while also nurturing the discipline of comparative strategic studies within the strategic management literature. The paper also focuses attention on the need for more conceptual work in the process of strategic alternation formulation and evaluation, not just within the strategic positioning framework, but in other theoretical traditions within strategic management; more procedural rigour in this area will likely both clarify some of the contradictions across theories within our field, but also make our work more relevant to practitioners who still struggle with designing strategies and putting them into practice. Through the use of the selection matrix and the decision table, this paper helps bridge the theoretical gap between the design and the implementation of effective business strategy.

Conclusion

One of the great remaining vagaries of strategic management is the transition from strategic analysis to the formulation of strategic alternatives. While much has been written about the antecedents of strategic alternatives (Porter, 1980, 1985; Hill, 1988; Murray, 1988), less detailed is the precise process through which strategic alternatives are created from the results of a strategic analysis. For those that share an interest in the strategic positioning framework, this particular paper is of significant benefit to both practitioners and academics. The selection matrix and the decision table provide a structured process for formulating and evaluating strategic business alternatives and represent valuable tools to those involved in the practice and the theory of strategic management. Together, these tools effectively addresses the knowledge deficit between strategic analysis and strategic implementation that hitherto has been insufficiently explored.

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BOARD GOVERNANCE ISSUES WITH NOT-FOR-PROFIT ORGANIZATIONS: KNOWLEDGE OF FINANCIAL STATEMENTS AND ASSURANCE RECEIVED

Cape Breton not-for-profits are trying to find what amount of adherence to the guidance contained in the Sarbanes-Oxley Act of 2002 is necessary to ensure their organizations are accountable and transparent to their stakeholders. I will explore what financial reports are presented to the boards and the assurance levels received on the annual financial statements as it pertains to good governance by Cape Breton not-for profits. Accordingly I will compare them to international organizations in order to illustrate what is done and what should be best practice.

Introduction

This paper will explore two of the present governance and legal issues that are being faced by Cape Breton Not-For-Profit's and their board members as they evolve from the original guidance contained in the Sarbanes-Oxley Act of 2002 and proceed down a more business like path in the future. The two issues are: what financial reports are presented to the boards and the assurance levels received on the annual financial statements. Both of these issues lead to the governance of an organization and how it is steered to fulfill their goals and objectives in both the present and the future.

Board members knowledge of financial accounting as it pertains to what financial reports are presented to the boards and their content as well as the assurance levels received on the annual financial statements were selected since they are specifically designed to provide financial tools by which management's performance can be measured and evaluated from both an economical

and outcome point of view. Accordingly, it is essential for Board members to have the necessary financial accounting skills to properly analyze the financial statements and understand the assurances received. As Not-For-Profit's proceed down a more business like path in the future they must be productive in meeting the external competition and challenges that are facing in an ever growing business environment.

Background

Prior to the Sarbanes-Oxley Act (SOX) in Canada a Panel on Accountability and Governance was formed to aid the not-for-profit sector in responding to the challenges of the day. The panel issued its final report: "*Building on Strength: Improving Governance and Accountability in Canada's Voluntary Sector*" (*Broadbent Report*) in February 1999. "It recognized the strength of the sector and emphasized the responsibility of individual voluntary organizations for good internal governance." (Gill 2001) It included a reference to the financial reporting issues prevalent at the time.

Then in 2002 the United States of America (USA) put into legislation the Sarbanes-Oxley Act (SOX). This Act was legislated to protect shareholders and the general public from misrepresentations and fraudulent acts as in the highly publicized collapses of Enron, Tyco and WorldCom. The Act is not a set of best practices but provides guidance in particular with respect to: auditor independence; corporate governance and responsibility measures and expanded financial reporting requirements. Not-for-profit entities are not immune to such situations. Accordingly a not-for-profit board should be proactive and ensure the promotion of due diligence in applying good governance policies rather than be a reactive board that sits back and waits to be legislated. Accounting professionals believed that although this legislation was enacted to stop questionable financial reporting and business practices for public profit orientated entities, that the not-for-profit sector would adopt these guidelines.

In the early years, knowledge of the act was widespread, however, adoption was not. In a 2003 Board Governance Survey of over 300 not-for-profits organizations in the USA conducted by Grant Thornton LLP in Chicago fewer than 40% of the population surveyed actually had meetings with their boards regarding the implications of Sarbanes-Oxley Act on their financial reporting and governance issues.

Bob Leavy, National Partner of Grant Thornton's Not-For-Profit Industry Practice stated: "Organizations that adopt similar policies to those that public companies are required to – such as ensuring that a financial expert sits on their board's audit committee – could benefit in terms of positive reaction from donors and funders as well as prospective board members. Bottom line, organizations operating in any community that depends upon the approval of the public to succeed cannot afford to overlook the implications that heightened scrutiny demands; institutional trust must be upheld." (Grant Thornton, 2003)

Institutional trust is earned and maintained by good governance policies issued from the organizations board of directors and maintaining high standards of financial reporting. The Board's primary responsibility to fulfill the organization's mission and vision statements; to safeguard the organizations resources and to manage them effectively and efficiently by allocating the proper financial resources and directing its human resources to fulfill its stated goals and objectives. Accordingly, the board of directors owes a duty of care (due diligence) to the stakeholders and can no longer just monitor the organization. This is supported in a 2004 paper by the Assembly of British Columbia Arts Councils where they stated: "Not-for-profit boards are responsible for the stewardship of the organization. Their role is to guard the mission of the organization and maintain high standards of accountability. Earning and maintaining the public trust is a key indicator that the board has fulfilled its governance role. Good governance is critical to ensuring that nonprofit organizations are effective and able to fully maximize their resources." (Assembly of British Columbia Arts Council, 2006)

"Canada reportedly has the second largest volunteer sector in the world, and its NPO's have been referred to as the "cornerstones" of Canadian communities. Canadian NPO's are diverse in their origins, structures and objectives." (Beyond Numbers 2009) That being the case, where do not-for-profits turn in Canada for guidance to promote good governance and financial reporting that leads to organizational accountability and transparency in light of the present options?

It became evident at a not-for-profit seminar held for board members at Cape Breton University in 2007 and 2008, that there is no corresponding legislation to SOX in Canada. In addition, although they would not have to comply with SOX they would like to apply its guidance to their organizations. While numerous paper and research has been done in the USA very little comprehensive data is available to assist Canadian organizations. At present, all Canadian not-for-profit organizations must adhere to the standards contained in the accounting sections of the CICA Handbook. Given the limited resources of most organizations, it tends to be onerous on them to keep up with and apply the new standards of reporting imposed on them by generally accepted accounting principles in the CICA Handbook; outside funding agencies and the government. Globally, our economy is intertwined with the rest of the world and rapidly responds to international events, especially those of the USA. To that end I will explore the two issues relating to good governance by Cape Breton not-for profits and compare them to organizations internationally in the USA using the information contained in the Grant Thornton LLP Surveys as benchmarks in order to illustrate where they need improvement and conclude with a recommended best practice.

Methodology

To explore board member's knowledge of financial accounting as it pertains to what financial reports are presented to the boards and their content as well as what assurance levels received on the annual financial statements were selected since they are specifically designed to provide financial tools by which management's performance can be measured and evaluated from both an economical and outcome point of view. Accordingly, as indicated in the original guidance contained in the Sarbanes-Oxley Act of 2002, it is essential for Board members to have the

necessary financial accounting skills to properly analyze the financial statements and understand the assurances their organizations receive. Both of these issues lead to the governance of an organization and how it is steered to fulfill their goals and objectives in both the present and the future. In addition, I will compare them internationally to not-for-profit organizations in the USA.

I have examined the Sarbanes-Oxley Act of 2002 and have drawn on literature and websites from both the profit and not-for-profit worlds. The profit world has been included given that was what SOX was originally created to provide guidance for and I have included sections of the Canadian Institute of Chartered Accountant's (CICA) Handbook and the International Financial Reporting Standards (IFRS).

In addition, to recognize the global environment that our not-for-profits are in I have reviewed articles; surveys and reports from around the world as they pertain to financial reporting issues and SOX. The most notable literature would be from the United States of America with supplementary literature from Ireland; United Kingdom and Australia.

This paper also draws on the ongoing research by the author. In particular a local survey which was sent to over 300 not-for-profits in Cape Breton with a response rate of greater than 10% to solicit information on financial reporting practices and the skill set of board members and their issues with follow up interviews done at not-for-profit seminars in 2007 and 2008 held at Cape Breton University. The organizations surveyed ranged in size from revenues of \$100,000 to \$1,500,000 with an employee base from one to twelve full time positions. The 36 completed surveys with follow ups allowed me to draw a comparison between Cape Breton not-for-profit board practices and internationally to not-for-profits in the USA.

As discussed in the introduction, I have selected the board member's knowledge of financial accounting as it pertains to what financial reports are presented to the boards and their content as well as the assurance levels received on the annual financial statements to determine what is best for Cape Breton Not-For- Profits for this paper. These were selected given the importance of the organization's sustainability and their need to have an effective and efficient board of directors. While the comparison of not-for-profit boards of different financial size is simplistic, it allows us to make the comparison and draw out a best practice for smaller not-for profit firms.

Issues

Organizations and board members in many cases don't understand why good governance matters, let alone understand that good governance allows them to achieve their organizational goals. In particular that financial reporting and its analysis are integral to good governance. There is no shortage of issues that lead to bad governance from board members, but what helps make them good members and make the link between good governance and meeting the goals and objectives of the organization. For example, the majority of the public including board members believe the financial statements are the responsibility of the outside accounting firm. In fact, the financial statements are the responsibility of management and the outside accounting

firm reports on the conformity to Generally Accepted Accounting Principles (GAAP) from the CICA Handbook.

In section 1000 (Financial Statement Concepts) and 4400 (Not-for-profit Organizations) of the CICA Handbook: “Financial statements include a statement of financial position (balance sheet); statement of operations (income statement); statement of changes in net assets and a statement of cash flows.” These will vary with the size of the organization and the assurance received. The three types of assurance reports that can be received from an independent outside accounting firm are an audit; review and compilation. They provide different levels of assurance and therefore are at different costs to the not-for-profit. An audit is a review based on generally accepted auditing standards (GAAS) of the financial statements; internal control system and support documentation to report an opinion “whether the statements present fairly the financial information in all material respects in accordance with generally accepted accounting principles”, (CICA Handbook) which is the most costly. A review report assesses “whether the information being reported upon is plausible within the framework”, (CICA Handbook) and provides negative assurance that the information in all material respects in accordance with GAAP, which is less costly than an audit. A compilation simply puts the information in a readable form and provides no assurance on the financial information and is the least costly.

Board members must be knowledgeable in financial accounting; financial statement presentation and the different types of assurance you can receive from the independent accounting firms. Do they understand what annual statements are presented and what level of assurance they have and/or require and how does it compare to the interim reports presented at the board meetings?

These questions were posed to participants at Not-for-profit seminars held at Cape Breton University in 2007 and 2008 with follow ups done from 2007 - 2009. At present, all Canadian not-for-profit organizations must adhere to the standards contained in the accounting sections of the CICA Handbook. Most board members from the 36 completed surveys said they read and understood the annual financial statements (92%) and all knew what type of assurance they received from the outside accounting firm (Audit 40%, Review 30% and Compilation 30%). This is a very positive result given that a 2006 survey indicated that “...50% or more of their board members have the ability to read and understand financial statements.” They all expressed the fact that cost was the major contributor to determining what type of engagement they solicited from the outside accounting firm followed by covenants imposed by financial institutions and government. Greater demands of the funders and donors as well as a need to be accountable and transparent will push most organization towards an audit or at a minimum a review. These restrictions will impose a further drain on the financial and human resources of the small not-for-profit organizations.

Of those audited 50% had audit committees in place compared to 65% in the USA (Grant Thornton, 2009). Interestingly during my literature review I noted that this was 40% in Ireland (Price Waterhouse Cooper, 2003). The USA percentages have been consistent since their 2005 survey. In this connection, each Cape Breton not-for-profit audit committee had a professional accountant; another business executive and someone with multiple board experience serving on them versus USA not-for-profits having these people on their audit committee’s at 75-80%. This was higher than I expected given the fact that in my opinion the professional communities in

small areas such as in Cape Breton are being tapped out and the individuals are reaching the burn out stage. Accordingly, they are reluctant to commit since it is harder to backfill their positions on small local not-for-profit boards. The healthier boards are the ones that have a mixture of older members for continuity and newer members to add vitality. Without such a mixture of skilled board members these organizations are not sustainable in the future.

Information pertaining to the interim reporting and budgeting that was also retrieved in 36 follow-up interviews in 2009. It indicated that management reported financial information to the board of directors as follows: 84% on a monthly basis, 8% quarterly and 8% semi annually. The financial statements presented to the board were the statement of operations (income statement) 92% of the time; the statement of financial position (balance sheet) 70% of the time; the statement of changes in net assets 39% of the time and the statement of cash flows at 44%. None of the organizations had complete financial statements presented except for at yearend. In this connection, although annual budgets were prepared 75% of the time, they were not analyzed until the yearend figures were produced and variances were reported at that time. Of those whom had annual budgets, only 11% prepared monthly variance analysis for board meetings. In half the cases the executive director was the presenter of the interim financial information and provided limited support documentation. In my opinion, this is unacceptable considering the overall risks associated with being a board member in today's litigious world that director's liability insurance will not cover.

Good Governance indicates that each board member must know the financial direction the organization is going (the budget) given that they are board approved and are responsible in theory for the strategic direction of the organization. You must evaluate from a strategic point of view, where you are and where you want to be in order to stay in business. The alignment of strategic goals and budgets for not-for-profits must be at the top of the board's priority since organizations can take many varied paths along the road. Accordingly, the budgets must be revised periodically in response to the ever changing political and economical climates that influences them. There is no cookie sheet approach to budgeting and/or financial presentations that fits all organizations; one size does not fit all. This leads to the question of what is the skill sets required to achieve the goals and objectives of the organization in this regard.

It is observed that the demographics of the Grant Thornton surveys would be similar to the not-for-profit demographics in Canada if we take into account that in terms of size 93% of not-for-profit organizations in Canada have revenues of less than \$1 million. "Hospital and universities and colleges represent less than one percent (1%) of all organizations but account for thirty-three percent (33%) of all revenues." (CICA, 2009) The local survey's had two participants from the hospital and university setting which represents less than ten percent (10%) of the surveys which would lead to the split in size.

What does this hold for the small not-for-profit boards given the guidelines from SOX back in 2002; the emergence of International Financial Reporting Standards in the near future combined with the fact that not-for-profit are still waiting to find out where their home is in Canadian GAAP. That is under the private sector or under the public sector of accounting in the Handbook.

Concluding Remarks

As shown one size does not fit all, the diversity of the Not-for-profit sector in Canada is too wide. Many not-for-profits believe to build a cohesive membership you look for people with similar backgrounds and social standing. However, homogeneous teams are often not well suited for complex tasks or problems that require creative solutions as is the case in Community Development or Not-for-profit settings. In these cases a team with diverse skill sets and social standing are needed in order for the organization to be in their business in the long term. Accordingly there is a trade off when selecting from the nominees between homogeneous and heterogeneous dynamics.

“Board members may be supportive and passionate about the agency and its mission but not well-versed in financial statements, cash flows and internal controls.” (Stone Bridge, 2007) This partially answers why board members think they can read and understand the financial statements and would know the differences between the three types of assurances, but would not be able to articulate them completely. “Not-for-profit organizations have stewardship obligations to contributors, members, lenders, and/or other users of their financial statements, including the public at large.” (Beyond Numbers 2009). These pressures combined with a board’s proactive behavior and self-regulation will always be a more powerful tool than compulsory compliance under GAAP. Cape Breton boards have strived for greater disclosure and transparency to be accountable to all stakeholders. Some additional training with regards to reading financial reports and budgeting should be provided, especially in light of the upcoming changes in reporting standards from the CICA and IFRS expected to be enforced in 2010 and 2011, respectively. This should improve the relevance and reliability of the financial statements and improve the transparency and accountability of the organization.

I believe this should start with ensuring that board members are knowledgeable in financial accounting; budgeting and the different types of assurance you can receive from the independent accounting firms. This is imperative, given the fact that the board members must approve the content of the financial statements; the budgets and the presentation of the financial reports most notably the financial statements and in their analysis. Both the financial statements and budget must provide the board with the necessary information to make informed decisions about the selection of programs and the allocation of its scarce financial and human resources. During the budgeting process we must strive to keep board members focused on the forest and not the trees. We must get them to ask the right questions. Does the budget line up with the organizations goal and objectives? What assumptions were made in order to prepare the budget? Who is responsible to monitor the budget and report the outcome to the board? What are the organizations policies regarding these issues?

Monthly financial reporting is the best way to provide the board with the necessary information to make those informed business decisions. In my opinion the monthly reporting should at a minimum include a statement of operations (income statement) and a statement of financial position (balance sheet). In addition at minimum annual budgets must be prepared with monthly budgets being the preferable option in order to see the strategic direction of the organization is

heading in the near future and those should then be compared to the actual results. All variances from those budgeted should be analyzed and the results reported to the board. Accordingly, the budgets then can be revised periodically in response to the ever changing political and economical climates that influences them.

For those that are audited (at present 40% of those surveyed) the creation of a strong audit committee and/or enhancement of present audit committee will lead to the best governance over the external and compliance reporting as indicated by SOX and GAAP. The fact that they all had a professional accountant; another business executive and someone with multiple board experience serving on their audit committee was extraordinary. However, Cape Breton not-for-profits should strive to exceed the number of audited organizations with audit committees in the USA of 65%. In addition, consideration to rotating the audit firm every five years, not-for-profits should ensure that non-audit procedures are not carried out by the auditing firm are encouraged under SOX.

In this connection, to reduce board risk organizations should put together a new board member orientation package that would incorporate the above as well as include such things as the organizations vision and mission statement; articles of association; by laws; board chart and organization chart and a history of the organization. The ongoing education of its members starting with the orientation package will reduce the overall risks associated with being a board member in today's litigious world that director's liability insurance will not cover.

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Halifax, Nova ScotiaSujit Sur
Dalhousie University**FOR WHOM THE FIRM TOILS: INVESTIGATING THE OWNERSHIP - PERFORMANCE LINKAGE**

This study articulates and empirically tests the effect of ownership on firm performance. Utilizing a multi-theoretic framework, we propose an alternative ownership framework, wherein ownership is analyzed in terms of the different *types* of shareholders *within* a firm, unlike previous focus on ‘inside’ managers and ‘outside’ dispersed investors.

Management theorists generally agree that the ownership structure of a firm impacts its performance; however, there is no consensus about the direction and magnitude of such a relationship (Daily, Dalton, & Rajagopalan, 2003). The dominant logic for ownership is based on agency theory and most researchers conceptualize ownership as the capital structure or equity holding of a firm (Dalton, Daily, Certo, & Roengpitya, 2003; Jensen & Meckling, 1976), and the ‘owner’ is analyzed mostly in terms of the agency theory prescribed alignment effect of insider manager/outside shareholder (Jensen & Murphy, 1990), or the monitoring or controlling effect of the ownership concentration of a large shareholder on firm performance (Shleifer & Vishny, 1997). However, the ownership concentration of a large shareholder also raises the potential of the ‘principal-principal’ agency problems (Morck, Wolfenzon, & Yeung, 2004), wherein a large shareholder might work against the interests of the minority shareholders (investors), thereby reducing firm performance. Most researchers conceptualize ownership as a homogenous entity distinct from the firm’s management, while ownership arrangement worldwide reflects heterogeneity within its structure and does not fit neatly into the dichotomous agency dilemmas. Although some recent studies (Lehmann, Warning, & Weigand, 2004; Pedersen & Thomsen, 2003) have found that the type of the largest shareholder or blockholder impacts firm performance; however, literature on ownership mostly focuses on the ownership concentration – performance relationship (Makhija & Spiro, 2000). Overall, governance is generally viewed in terms of mitigating the two kinds of agency costs, which is considered to lead to a homogeneous performance objective of firm value maximization. However, recent meta-analyses (Dalton et al., 2003; Dalton, Daily, Ellstrand & Johnson, 1998) do not find statistical support for any such direct relationship.

This study attempts to show that the firm ownership as well as performance objectives are not homogeneous, as different types of owners have differing criteria of firm ‘value’ based on their different objectives, and thus the ownership type is a major determinant of the selection of the firm’s performance objective. Furthermore, the *overall* composition of ownership, i.e. the aggregation of all the different types of owners and their respective ownership concentrations *within* a firm, determines the degree to which each type of owners’ objectives is attained. We propose that ownership is better understood as an aggregation, i.e. composed of aggregating the different types of owners, who differ in *their* choice of performance objectives. Thus, as per the proposed model, the aggregated ownership of a firm is determined as a composite of the different types of owners and their respective ownership concentrations, and this relationship predicts the choice and attainment of the aggregated performance objectives of the different types of owners. Based on existing literature, this study broadly classifies ownership types as founder/family, corporate and institutional and utilizing a multi-theoretic lens, attempts to explain why the type of owner might be influential in determining a firm’s aggregated ownership.

This study thus is an important first step in including the *owners* in studying the issues of *ownership*, furthering the understanding of the effects of ownership in three distinct ways. First, it offers a theoretical basis for understanding *why* different types of owners prefer different performance outcomes, are driven by different

imperatives and thereby differ in their choice of governance mechanisms. Secondly, it advances a tentative rationale for explaining the contradictory findings in governance literature on ownership concentration and firm performance. And, finally, it offers an exploratory model of aggregated ownership, using the identity of the type of owners in conjunction with their ownership concentration as determining factors for the selection and attainment of the firm's performance objectives.

The paper is organized as follows. We first review the literature across management disciplines to integrate our present understanding and conceptualization of ownership. Then we propose a theoretical framework to understand the issues of ownership types and aggregated ownership and develop a model for determining the ownership-performance relationship. Thereafter, a broad typology of ownership is offered and exploratory hypotheses predicting the relationships are presented. We then outline the study design and research methodology, followed by the findings and discussion. We conclude with research and managerial implications and limitations.

Review of Ownership Literature

Ownership issues have been predominantly researched utilizing the Jensen et al. (1976) theory of the firm. This theory is based on the shareholder value maximization objective and built on the Berle and Means (1932) premise of diffused ownership. Agency theory assumes that outside dispersed investors as the provider of capital are the rightful owner (principal) of a firm, and the manager (agent) administers the firm on behalf of this atomized principal. An 'owner' is generally understood to be a homogeneous 'outside' entity, either the dispersed minority shareholders (individual investors), or another exogenous entity (e.g. large shareholder or blockholder) with interests aligned with the minority shareholders. The prescribed alignment governance mechanisms ensure that the 'inside' managers' interests are aligned with the interests of such owners, mitigating the 'principal-agent' agency problem (Jensen et al., 1990), and thus results in better firm performance. Agency theorists also prescribe ownership concentration as another means of mitigating agency costs, wherein an outside investor with a relatively large shareholding (called a blockholder), monitors the managers to safeguard its investment in the firm (Shleifer & Vishny, 1997). As a result, monitoring and controlling the managers is a necessary cost of the principal-agent separation (Becht, Bolton, & Roell, 2003; Demsetz & Villalonga, 2001) thus mitigating the type I (Principal-Agent) agency dilemmas.

Somewhere in the articulation of this elegantly simple theory, the large shareholding owners of the firm, who generally are actively involved in the management of *their* firm – as distinct from the 'hands off' dispersed investors – were entirely dropped from the analyses, and researchers continue to focus on inside managers' and outside investors' differences. This oversight might be of little consequence if the Berleian premise of atomized ownership was the prevalent model, however recent research reports (Denis & McConnell, 2003; Faccio & Lang, 2002; La Porta, Lopez de Silanes, & Shleifer, 1999) show that concentrated ownership is the norm outside of the US and UK. The findings of some researchers (Holderness, 2009; La Porta et al., 1999) question the validity of the dispersed model in the American context also. Even in Berle and Means' (1932) study, out of the largest 200 US corporations, there was evidence of managerial control for only 44, and only for 4 out of the 106 industrial corporations. La Porta et al. (1999) report that 50% to 60% of the large and medium sized US public firms respectively, have a controlling shareholder at the 10% holding cutoff. While Holderness (2009) reports 89% of S&P 500 firms, and 96% of the 375 representative US firms have blockholders (at 5% level), and furthermore, these blockholders own 39% of the shares on average. In the case of corporations outside of the US, UK, Japan and Taiwan, the average holding of the three largest shareholders amongst the 10 largest domestic firms is 48.47% (median 48.21%). As stated by La Porta et al. (1998: pg. 1146) dispersed ownership in large public corporations is a myth, and the finance textbook model of the managers faced with a multitude of dispersed shareholders is an exception to the rule!

Thus if concentrated ownership *is* the norm worldwide, including in the largest of the publicly held firms, the principal-agent agency issues might have limited relevance for ownership and even corporate governance researchers. Also, if most firms have large shareholders, then identity of the entity or entities that possess concentrated holdings will be an important influence on the selection of the firm's performance objectives, as well as on the governance and conduct of the firm towards attaining those objectives. And such large

shareholders might not be mere active/passive blockholders monitoring or ‘controlling’ the managerial actions towards achieving the singular objective of share value maximization, but might have other performance objectives in mind (Cameron & Whetten, 1983). Such shareholders blur the strict distinction between outsiders and insiders as these are owners as well as managers in *their* firms. Also, the risks that concern this large shareholder might be distinct from the systematic market risks that concern the individual financial investors; the large shareholder might not be able to effectively diversify away portfolio risks because of its concentrated holdings in a specific firm. Thus the large shareholder justifiably might have objectives that differ from the investors’ value maximization objective. These owners’ risk assessment might legitimately be firm- or business-specific, while the investors’ risk is market-specific. Thus, it is crucial to distinguish between owners and the stereotypical dispersed investors. Some researchers do attempt to distinguish *within* the owner-manager dichotomy (Misangyi, 2002) while staying within the confines of agency theory. However, the governance and performance implications are still assessed in term of the agency theoretic perspective with the focus on shareholder wealth maximization.

Of late, some agency theorists warn of the entrenchment and expropriation effects of large ownership concentration (Dharwadkar, George, & Brandes, 2000), wherein a blockholder or a large shareholder (principal) might work against the interests of other investors (principal), raising the type II or principal-principal agency (PPA) concern. A related stream of literature also looks at large blockholdings, especially by individuals, in terms of the owners receiving private benefits of control or entrenchment (Gompers, Ishii, & Metrick, 2004; Jarrell & Poulsen, 1988; Tatiana, 2003). Such an analytical lens might be of more relevance for ownership studies, especially in view of the large-scale ownership by individual or family owners (Anderson, Mansi, & Reeb, 2003), and the possible differences in interests or approaches to wealth maximization in terms of financial institutions (Woitke, 2002).

However, ownership as defined solely in terms of inside manager/outside owner as well as blockholder/institutional holding concentration has not been found to be positively or even negatively related to financial performance as predicted by agency theory (Dalton et al., 2003; Dalton, Daily, Ellstrand, & Johnson, 1998). Most researchers point toward a complex non-monotonic relationship between ownership concentration and firm performance (Morck, Shleifer, & Vishny, 1988). In fact, Demsetz (1983) argues that the ownership structure is an endogenously determined variable and cannot have a consistent relationship with firm performance, since the ownership structure that “emerges is an endogenous outcome of competitive selection in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm” (1983, pg. 384). Subsequent findings (Demsetz & Lehn, 1985; Demsetz et al., 2001) further this argument, however, they do not clarify what might be the constituents of this endogenous variable.

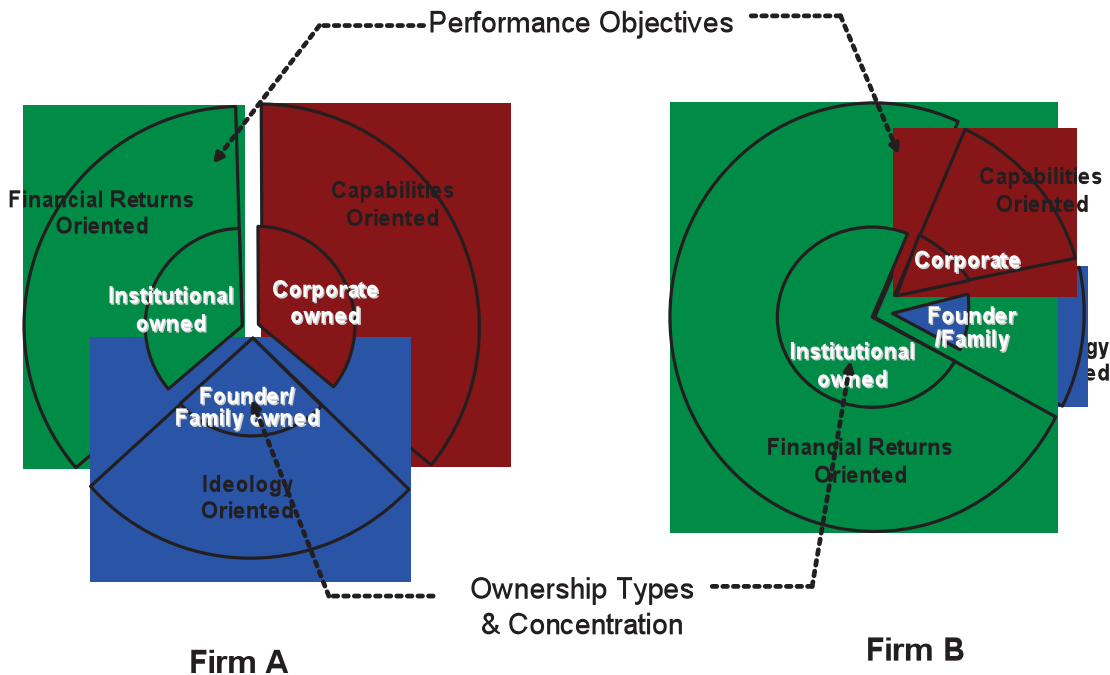
In contrast however, some recent studies (Boubakri, Cosset, & Guedhami, 2005; Jonnergard & Karreman, 2004; Thomsen et al., 2000) have consistently found that the identity of the *largest* shareholder strongly impacts firm performance. Clearly then, the entity or entities that possess concentrated holdings are an important influence on the performance and conduct of a firm. Also, the risks that concern these large shareholders might be distinct from the systematic market risks – the only risk of concern for financial investors. Thus, agency theory, even including the PPA perspective, is unable to reconcile the differences in risk preference between the different *types* of owners, and as the agency-driven literature on ownership has mostly focused on the ownership *concentration* – firm performance relationship (Makhija & Spiro, 2000) – the rationale and systematic effects of different types of owners within a firm on the firm’s performance is still relatively under-researched. In the following section, we elaborate on our proffered framework that might better explain the ownership-performance relationship and reconcile the contradiction in ownership studies.

Overview of the Ownership AND Performance Model

We propose that the objective of the *type of owner*, tempered by the external environment, determine the selection of performance objectives and conduct of *their* firms. In other words, we propose ownership is composed of the different types of owners, who, driven by differing risk preferences, maintain a specific ownership concentration *within* a firm in order to attain their specific performance objective.

We build on the findings in the extent management literature, encompassing the agency, economic and behavioural perspectives, to develop an integrated model of aggregated ownership. We propose that the selection and attainment of a firm's performance objectives are determined by the composition of the types of owners and their respective ownership concentration. The higher the concentration of any one type of owner, the closer will be the firm's performance objective to the objective of that type of owner. As suggested by in Figure 1, we propose that the performance objectives of a firm are in direct proportion to its aggregated ownership.

Figure 1: The Aggregated Ownership – Firm Performance Relationship



This aggregated ownership, we argue, determines the selection of each firm's performance objectives, based on the imperatives of the different types of owners. Such a model might overcome the theoretical shortcomings of choosing one approach over the other, and thus be a better representation of the reality of ownership effect on firm performance. We build on existing owner identity literature to develop our framework.

Though under-researched, the importance of the identity of largest shareholder in determining firm performance has been pointed out by some researchers (Cubbin & Leech, 1983; Gedajlovic, 1993; Nickel, Nicolitsas, & Dryden, 1997). Building on these studies, Pedersen & Thomsen (1997) and Thomsen et al. (2000) find that the identity of the largest shareholder, and their ownership concentration, has a significant impact on firm performance. However, they focus solely on the *largest* shareholder (as in the entity with the largest shareholding), and assess performance implications solely from the perspective of the minority investors, thus not acknowledging the fact that the objectives, interests and risk assessment of the other *owners* (other large shareholders in the firm, but not the *largest*) might also affect the selection and attainment of the firm's performance objectives. Agency theory does not recognize the fact that the interests and risk management of shareholders might be heterogeneous, that is, the interests and risk management of an 'owner' (i.e. a large shareholder) might be justifiably different from those of the other 'owners', as well as the minority investors. Such a conflict of interests is termed as the principal-principal agency problem by agency theorists, while economic theorists would term it the transaction cost (Williamson, 1999) or the nexus of contracts (Demsetz et al., 1985), and the behavioural school of thought would term it as the consensus-building and decision-making process (Cyert & March, 1963) between the different actors involved in governing a firm. We assert that this heterogeneity of interests might also be the cause of the debate on the merits/demerits of strategic diversification

(Amihud & Lev, 1981, 1999; Lane, Cannella, & Lubatkin, 1998, 1999), as ownership and performance implicitly connotes different actors and performance yardsticks, as per the agency and classic economics theorists. Thus, the underlying issue might be about heterogeneity *within ownership*, and we assert that non-inclusion of this factor is the root cause for the contradiction and confusion in the ownership studies. We argue that different risk assessments drive the different types of owners to prefer alternative performance objectives. Specifically, institutional owners prefer market risk management, corporate owners prefer business specific risk management, while founder and family firms prefer individually (ideology) defined risk management. This argument is further elaborated in the section on typology of ownership. In effect, we assert that the differing interests of the different types of owners *within* any given firm leads to the variation in firms' performance objectives vis-à-vis other firms, and the higher the concentration of a specific type of owner, the closer the firm's performance objective to the interests and objective of that type of owner.

Furthermore, instead of debating which of these interests *should* take precedence, we suggest that by analyzing ownership overall in terms of the different types of owners in conjunction with their respective ownership concentration, will better explain the ownership–performance relationship in a firm. We argue that the owners of a firm, in an effort to achieve their desired objectives, acquire a certain ownership concentration to mitigate the risks specific to their context. Thus in a largely institution-owned firm, the institutional owner might be attempting to safeguard her financial investment and will be interested in mitigating systematic market risk; while in a largely corporation-owned firm, the corporate owner is attempting to safeguard her vertical value chain (Porter, 1980, 1991), or the stability of inflowing resources (Pfeffer, 1987), thereby mitigating business-specific risk; while a predominantly founder- or family-owned firm might be attempting commitment to and continuity of their ideology (Miller, 2005), and is only concerned with firm-specific risks. Typically, any given firm has all three types of owners, and thus the different types of owners acquire an adequate level of ownership concentration to gain and maintain sufficient control, so as to be able to attain the *desired* level of their performance objectives. Thus the identities of *all* the types of owners (large shareholders) of a firm is a major deterministic factor of which governance perspective and performance measures are appropriate for analyzing the conduct of the firm, while the ownership concentrations of these types of owners determine the extent to which the firm's overall performance objective matches the respective requirements.

Thus, as different risk assessments are relevant for the different types of owners (Thomsen et al., 2000: pg. 694), there is a need to utilize a multiple lens perspective wherein the governance and performance implications of ownership in each category are best understood by the tenets of a different perspective. We utilize the agency perspective (Jensen et al., 1976) as it best explains the governance and performance objectives of an institution owner, while the capabilities perspective (Rumelt, Schendel, & Teece, 1991) is more applicable for corporation owner. In the case of founder- and family-owned firms, the tenets of behavioural framework (Moran & Ghoshal, 1999; Nahapiet & Ghoshal, 1998) are better suited to understanding governance and performance objectives. Such a multi-theoretic perspective is not only congruent with the findings of the existing owner-identity studies (Jonnergard & Karreman, 2004; Thomsen et al., 2000), but also offers an explanation for the contradictions and mixed results in previous studies on the ownership concentration–financial performance relationship, as elaborated below. Utilizing this multi-theoretic perspective we develop a broad conceptual typology of three distinct classifications of firm ownership—institution-owned, corporation-owned and founder/family-owned, based on the empirical taxonomical findings of previous studies on ownership. We disregard governmental ownership as they operate on societal, geo-political and national imperative than on business principles.

We acknowledge the fact that most firms will have hybridized ownership, as in all three different types of shareholders might co-exist and thus the 'voice' of these different types of owners will lead to deviation from the 'pure' performance objective, which otherwise might be the case if only one type of ownership was prevalent in the firm. Thus the aggregation of the identity *and* ownership concentrations of *all* the different types of owners will determine the choice of performance objective.

It is important to reiterate here that unlike the owner identity studies, our ownership conceptualization is not merely a reflection of the identity of the *largest* shareholder, as we argue for the *aggregation of all the different types of shareholders* that hold shares in the firm. Such a conceptualization is a better reflection of reality, as all

public firms have mixed ownership, i.e. the different types of shareholders are present within their capital constituents. Such a categorization also circumvents the requirement for a precise definition of what constitutes the ‘largest shareholding’ as well as the endogeneity issues (Demsetz, 1983; Demsetz et al., 1985; Demsetz et al., 2001) as it allows us to simultaneously assess the impact of the different types of owners within a firm. Previous research has mostly defined the largest shareholder as the entity that has the *largest* percentage shareholding (Pedersen & Thomsen, 1999; Thomsen et al., 2000) and thus cannot account for the “ownership structure that emerges being an endogenous outcome of competitive selection in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm” ((Demsetz, 1983: p 384). We argue for assessing *all* the shareholder types and their *aggregated* shareholding percentages, based on the assumption that the similar type owners might have similar objectives. Thus, we not only cater for the variety in ‘cost advantages and disadvantages’ and thus circumvent the endogeneity issue, but also can better assess the impact of the largest *type* of shareholder. Hence, owner identities and ownership holdings assessed *together* is the critical component in the choice of performance objective. Based on the above arguments, we offer the following hypothesis:

H1: The aggregated ownership (i.e. all the types of owners and their respective shareholdings) will best predict the performance of the firm

The owner types and their concentrations are critical to the selection of firm performance objectives, as illustrated in Table 1 and elaborated below.

Table 1: Comparative Overview of the Broad Ownership Types

	Institution Owner	Corporate Owner	Founder/Family Owner
Risk of Concern	Market specific	Business specific	Firm specific
Imperative	Structure	Strategy	Service
Theoretical Model	Agency Perspective	Neo-Economic/ RBV Perspective	Psychological Perspective
Performance Objectives	Investor Oriented	Capabilities Oriented	Ideology Oriented
Probable Performance Yardsticks	Financial Performance Cost reduction Output targets	Growth Performance R&D outlay Product development	Idiosyncratic Leader Defined
Performance Measures	Return on Total Assets Return on Equity	R&D-Sales ratio Investment in associated firms	Previous Performance

Ownership Typology and Aggregation Model

In the following section, we examine the three distinct types of owner entities suggested in literature, and explore the rationale why the performance objectives and governance mechanism might differ among the different type of owners.

Institution Owned Firms: The *raison d'être* of financial institutions (e.g. mutual funds, pension funds, banking, insurance, or other credit enterprises) is to generate financial returns for their constituents. Thus, when financial institutions are shareholders in any firm, their objective will be to ensure that they are provided the maximum return possible. Useem, Bowman, Myatt, and Irvine (1993) cite a fund manager stating, "Whatever we do in the area of proxy initiatives or voting proxies, there has to be fundamentally an economic motivation behind it. Before we devote resources to something we really have to be able to say that this is going to leave our participants better off than if we hadn't done it" (1993: pg. 181). Therefore, this category of owners will govern the firm with an objective of maximizing the financial returns. This type of owner is not a functional or firm operational specialist, and apart from the financial function, will not be able to contribute to the functioning and management of the firm. Thus, there is a distinct separation of ownership from management in such firms.

The tenets of agency theory will best explain governance and performance in this type of ownership, and the literature is replete with support for this assertion (Hoskisson, Hitt, Johnson, & Grossman, 2002; Zahra, Neubaum, & Huse, 2000). In such type of ownership, the managers might possibly be in conflict with the financial institutional 'owner', as professional managers are schooled in the strategic tenets of competitive advantage and firm/business specific risk reduction (Bettis, 1983), while the financial institutional 'owner' might be concerned more with maximizing financial returns and mitigating systematic market risk. This type of institutional owner (like the dispersed investors) can minimize the financial risks that they do not wish to bear effectively by means of portfolio diversification, and thus see no advantage in management engaging in firm/business-specific risk-management activities. Thus, what a manager might consider as gaining advantages of economy of scale and scope and mitigating firm/business-specific risk by acquiring another firm or by diversifying into new markets or new products (Lane et al., 1998), the institutional 'owner' might regard as unrelated acquisition- or value-reducing diversification, or attempts at entrenchment or managerial risk reduction (Amihud et al., 1981, 1999). Likewise, managers attempting to finance acquisition with free cashflow or debt might be viewed by institutional owners as attempting to maintain private benefits of control (Amihud, Lev, & Travlos, 1990), while management might view it as a conservative option of organic growth.

Such institutional owners therefore might rely on formal governance structures that are put in place to enable the institutional owner in *maintaining* control and safeguarding their interests from potential managerial misadventures or opportunism, wherein such owners pursue the norms of efficiency and stability through routinization, standardization, specialization and formalization (Mintzberg, 1979). Thus such owners might be *exploiting* the existing competitive advantage that the firm has already achieved. Hence, as per the tenets of agency theory, the financial institutional 'owners' might want to be a large (controlling) shareholder in a given firm to take advantage of the high financial returns from the firm and utilize rigid formal structures to minimize managerial 'adventurism'. Performance will be measured in terms of cost reduction and output targets in an attempt to achieve financial efficiencies, and thus performance objectives will be oriented towards investor returns. Thus we offer:

H2: The shareholding concentration of institutional owners in a given firm will be positively related to financial returns.

Corporation-Owned Firms: Corporations might acquire controlling rights of another firm with a view to developing unique technologies or capabilities, or to ensure uninterrupted supply of goods and resources, or even to deny these capabilities to their rivals, in an attempt to *achieve* competitiveness. Such acquiring of controlling shares is an alternative to the mergers and acquisitions (Palmer & Barber, 2001; Pfeffer, 1972) resorted to by firms to stabilize their resource inflow, or perhaps as a toehold towards a possible future merger or acquisition in accordance with the tenets of a resource-dependence perspective. Folta (1998) asserts that firms undertake equity linkages like direct minority holdings and joint ventures, especially when confronted by technological uncertainty, because they provide an *option to defer* internal development or acquisition of a target firm or venture (1998: pg. 1008). As this type of corporate owner has functional expertise and in-depth understanding of the firm's operations, the possibility of 'principal-agent' issues will be low. The controlling shareholding by the corporation might enable 'a stable structure of coordinated action' (Pfeffer et al. 1978: pg.

161), wherein the corporate-owned firm is utilized for the corporate owner's strategic 'value' maximization, and not necessarily investor financial value maximization. Hence the performance objective of such a corporate owner might be generation of capabilities and resources that further the corporation's interests instead of financial returns for the specific firm. Thus generation of profits by the 'held' firm especially in the short term, might not be the primary concern of the corporate owner. Likewise, the owning corporation might divert some of its resources or profits to this focal firm if and when required, to ensure continuity of supply or uninterrupted capability generation. Support for this assertion is found by Gedajlovic and Shapiro (2002) in their study on ownership and profitability of Japanese firms. We argue that in accordance with the tenets of system theory (Freeman, 1984), the large system (controlling corporation) might be optimal *only* when the individual sub-systems (the firms being held) are not operating optimally. Thus, the corporate owner might restructure or reallocate resources within its 'held' firms, based on the requirements of its overall strategic imperative and not strictly as a function of the existing performance of the 'held' firms, i.e. reallocate profits from the high-performing firms to low-performing firms as required to maintain overall efficiencies (Gedajlovic et al., 2002).

Such owners might prefer to diversify, as they proactively seek new opportunities, new markets and new products, and pursue a strategy of differentiation (Miller, 1987: pg. 695). Such owners thus *maintain* their ownership concentration, so as to coordinate and synchronize the operations of their 'held' firms, in an attempt to develop distinctive competencies that might give them competitive advantage, and thus performance also supports this assertion, and performance will be capability oriented. Thus I propose:

H3: Ownership concentration of corporation shareholders in a given firm will be positively related to capability generation

Individual Owned Firms: Researchers interested in entrepreneurship and family firms have always asserted that these types of firms operate and conduct business in a distinctive manner vis-à-vis other firms (Vesper, 1985). An entrepreneur (or founder) is seen as one who undertakes risky projects that pay off in the long term, distinct from the short- or medium-term orientation of non-founder/non-family firms (Block & MacMillan, 1993; Martens, 2005). Similarly, (Miller & Breton-Miller, 2005) develop a typology for family-owned firms, distinct from comparable firms in their long-term commitment to ideology and employees. Likewise, other researchers (Anderson et al., 2003; Anderson & Reeb, 2004; Gompers et al., 2004) find founder and family firms have idiosyncratic governance and operating mechanism that is very different from non-founder, non-family firms. These studies also show that family firms generally outperform and outlive non-family-owned firms, while some other researchers find family firms underperform vis-à-vis the market (Lauterbach & Vaninsky, 1999; Schulze, Lubatkin, Dino, & Buchholtz, 2001). An illustrative example that might explain such opposing findings is the case of Corning Inc. described by Miller et al. (2005). The founding family and controlling shareholder of this glassware manufacturer decided to diversify into fibre optics in the 1950s, but it took about 30 years before the division generated any revenues, and 50 years before the division turned profitable. Thus, up to the 49th year, the family ownership would be seen as causing underperformance, but from year 50 onwards, it would be seen as leading to outperforming the market. Utilizing their control by the family is assessed as a long-term commitment by Miller et al. (2005), while it might also be termed as managerial entrenchment effect or appropriation of minority shareholders' rights by agency theorists, especially during the early years. Thus, we assert that founder/family firms utilize their ownership concentration to maintain control in an attempt to safeguard their ideology and their aspiration driven objectives.

The individual-owned founder/family firms differ in their 'profit achievement' horizons, have close involvement in the activities of the firm (Miller et al., 2005), have stable market valuation and have lower liquidity and volatility in their stock price (Becht et al., 2003). This behaviour can be interpreted in two ways—the low variation in returns makes these types of firms either unattractive to investors, or these firms are averse to diluting the ownership/control of the founder/family, and thus prefer debt to issuing equity. In any case, such firms rarely, if ever, have distinct separation of ownership from control. In such firms the leader's ideology defines the firm's orientation towards strategy, structure, decision-making style, and even selection of target markets (Miller, 1987: pg. 693). An illustrative example is this quote from Rupert Murdoch: "For better or for worse, our company [The News Corporation Ltd.] is a reflection of my thinking, my character, my values"

(Pilger, 1998). Based on the tenets of behavioural framework, some studies (Moran & Ghoshal, 1996; Moran et al., 1999; Nahapiet et al., 1998; Sundaramurthy & Lewis, 2003) argue that firm performance at the individual level of such firms will experience reinforcing cycles consistent with their prior performance, either continually increasing or continually decreasing. Thus we propose:

H4: Ownership concentration of founder/family shareholders in a given firm will be positively related to previous performance

In the next section we describe the study design, research methodology and choice of variables to operationalize the constructs utilized in the above framework. I chose to limit the study to firms only in United States to obviate the confounding effects of national institutions, legal and cultural issues.

Research Methodology

The sample was chosen to provide a representative range of all public US firms, and the ownership data were acquired from the Bureau van Dijk Electronic Publishing’s OSIRIS database. The initial pool included all publicly listed firms reported in the database and, after dropping firms with missing data (mostly ownership data), the final sample consisted of 3825 publicly listed firms with ownership data reported from their 2005-2006 financial year report (as reported during 2006-2007) for ownership and performance. OSIRIS reports the direct as well as indirect holdings (via cross holdings, through intermediary entities and/or pyramids) thus we were able to utilize the ultimate ownership percentage of each type of owner. This additive method of compiling ultimate ownership percentages in the database thus led in some instances to the total holdings exceeding 100%.

	N	INSTI_OW	CORP_OW	IND_OW	NO_EMP	ROSF	ROTA	BK_V_SHR	R&D	ROTA_Diff	ROSF_Diff
INSTI_OW	3825										
CORP_OW	3825	-.053**									
IND_OW	3825	-.243**	-.084**								
NO_EMP	3702	.067**	0.007	-.067**							
ROSF	3533	.139**	.050**	-.033*	.061**						
ROTA	3801	.177**	0.032	-.059**	.051**	.758**					
BK_V_SHR	3821	0.012	0.009	0.005	0.004	0.023	0.029				
R&D	1536	-.102**	0.045	.092**	-.695**	-.092**	-.080**	-.114**			
ROTA_Diff	3725	-.113**	-0.001	.064**	-0.020	-0.032	-.598**	-0.013	0.031		
ROSF_Diff	3441	-.071**	-0.013	0.021	-0.018	-.398**	-.217**	-0.019	0.033	.311**	
R&D_Diff	1497	0.045	0.012	-0.019	.395**	0.052	0.045	.132**	-.719**	-0.016	-0.019

The abridged descriptive statistics are reported in Table 2.

Table 2: Pearson Correlations Ownership – Firm Performance Variables

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed)

As our conceptualization included multiple dependent variables, we chose to utilize Structural Equation Modeling for testing the first set of hypotheses. Furthermore, as the conceptualization of ownership is as an aggregation and each ownership type is simultaneously being analyzed to different dimensions of performance indicators, we chose to test the remaining sets of hypotheses as path analytical modeling. As SEM assesses the fit of the theoretically derived mathematical model to the data, it allows modeling of the error terms and enables

assessment of how well the data compares to the model. Our choice of variables and their relationship to the construct is as below.

Ownership Measures: Ownership being the variable of interest, we utilized the aggregation model to assess the overall ownership of every firm in the sample. We calculated three focal ownership variables to test the hypotheses: individual-owned, corporate-owned and institutional-owned.

Individual-Owned Shareholdings: Individual-owned (IND_OW) reflects the percentage of shareholdings by named individuals and/or families. Besides single private individuals or families, shareholders designated by more than one named individual or family are also placed in this category. This latter case corresponds to entries like: "Mr Gregory Edward Bailey & Mrs Margaret Ethel Bailey"; "Mme Bringaud and sons"; "Mme Sotto and M Cohen"; "Families Courault and Andrivon".

Corporate-Owned Shareholdings: Likewise, corporate-owned (CORP_OW) is the aggregated percentage of shareholdings by non-financial oriented companies. This category includes all companies that are not banks or other financial companies nor insurance companies, involved in manufacturing activities and trading activities.

Institutional-Owned Shareholdings: Similarly, institutional-owned (INSTI_OW) is the aggregated sum of shareholding by financial companies like pension funds, mutual funds, banks, insurance companies and other financial companies. We excluded private equity fund holdings from this category as these owners do not strictly conform to the theoretically grounded rationale of financial institutions, i.e. they do not have a strict nor public mandate of generating financial returns exclusively and can easily follow the capability or ideology orientations. Also, as previously mentioned, we excluded all state ownership including sovereign fund ownership. The dependent construct in this analysis is overall firm performance. As described before, we partitioned performance into three categories: Financial Returns oriented, Capabilities oriented and Ideology oriented. We utilized different firm performance characteristics as a reflection of these three types of performance objectives as described below. Also, the alternative model suggested in the literature is that firm size influences firm performance. We included firm size characteristics like book value per share and number of employees to operationalize firm size characteristics as below.

Financial Returns–Oriented Indicators: This performance objective was rather straightforward to operationalize. We utilized the firm’s return on equity and return on total assets as indicators of financial returns. The Osiris database’s nomenclature for return on equity is “Return on Shareholders Funds” (ROSF) and was utilized as is. Likewise, we utilized Osiris’s calculation Return on Total Assets (ROTA) as is. Utilizing ROSF and ROTA is considered better than using net profits as ROSF and ROTA normalize profitability based on its equity and asset base.

Capabilities-Oriented Indicator: We utilized a commonly accepted measure of capability generation, namely Research and Development expenses incurred by a firm (David, O'Brien, & Yoshikawa, 2008a; Franko, 1989). Osiris database’s reports research and development (R&D) expenses in terms of thousands of dollars (USD) and was utilized as is. We acknowledge that there are other indicators that can be used in addition to R&D to assess the construct of capability orientation (namely patent applications, human skills development, employee training and developmental expenses); however, these data were not readily available.

Previous Performance–Oriented Indicators: For the sake of consistency, we retained the financial return– and capability-oriented indicators for operationalizing the previous performance orientation measure. To develop the measure, we first averaged the previous five years (2002 to 2006) ROSF, ROTA and R&D data for each firm and subtracted the 2007 data from this average. This gave us the difference score between the five-year average and the present year (2007) value for each indicator. As the requirement was to assess the difference between the present and average, while the difference could possibly have positive or negative values, where the sign was not of importance per se, we squared the difference score to develop a measure of absolute difference, which was not affected by the sign (+/-) of the indicator. Thus, essentially, we assessed the change in present performance from (averaged) previous performance, as follows:

$$\text{ROSF_diff} = [(\text{av. Of 2002 to 2006 ROSF}) - (\text{ROSF 2007})]^2$$

Likewise, we computed ROTA_diff and R&D_diff, using the same formula. This manipulation is necessary for the proper assessment as illustrated below.

FIRM	5 yr average ROSF	ROSF 2007	Difference	Squared term
W Inc.	12.43	14.43	-2.00	4.00
X Inc.	14.43	12.43	2.00	4.00
Y Inc.	-3.50	-1.50	-2.00	4.00
Z Inc.	3.50	1.50	2.00	4.00

As illustrated in the case above, although the difference between the average values and present values are the same in all four cases, the signs would confound the results during the analysis. Furthermore, squaring the term enables us to capture Sundaramurthy’s (2003) assertion of reinforcing cycles, i.e. increasing rate of change irrespective of whether it was positive or negative. Thus, as per the hypotheses, individual ownership will be positively related to changes in previous performance, while corporate and institutional ownership will be negatively related.

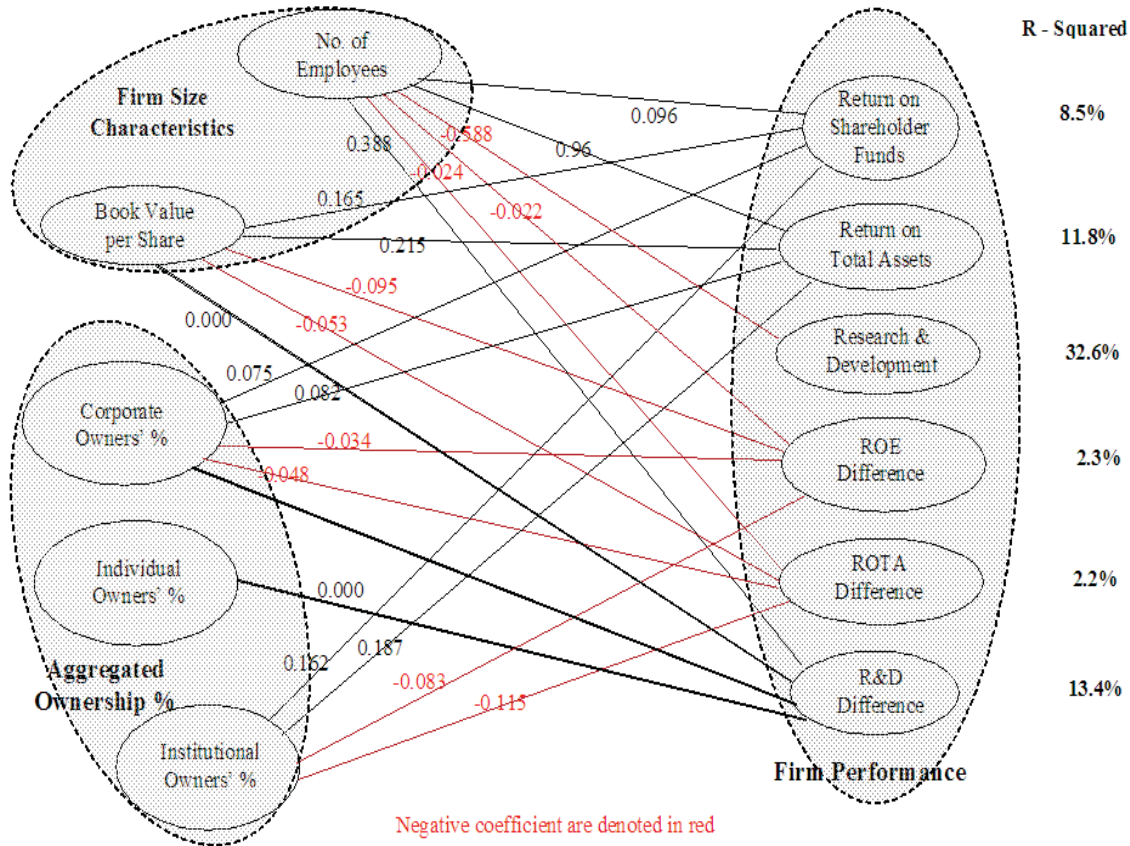
Firm Size Characteristics Indicators: Some of the earliest empirical studies utilized firm size as being predictive of firm performance (Scherer, 1965) and most researchers continue to use size characteristics as control variables in performance-related studies. Commonly accepted size characteristics are number of employees, book value per share, market capitalization and net sales. As our research design utilizes simultaneous equation modeling, which is extremely sensitive to multicollinearity issues, we could not include net sales or market capitalization as a size indicator as it was strongly correlated to other independent variables, specifically the ownership variables of institutional ownership and corporate ownership, and the number of employees variable. This relationship is well documented, and in fact some ownership studies utilize market capitalization as well as net sales as a performance indicator (Thomsen et al., 2000). Thus, we omitted market capitalization and net sales as indicators of firm size, and operationalized the firm size construct by utilizing the number of employees (No_EMP) and the tangible book value per share (BkVal_Shr) as indicators of firm size. Osiris reports both these data as is commonly accepted in management studies and thus were utilized as is.

In the following section we present the findings of the statistical analysis and discuss the results in terms of whether the proffered models and hypotheses.

Findings and Discussion

We utilized structural equation modeling analytical technique using the EQS Version 6.1 (Bentler & Wu, 1995) software package to empirically test and evaluate the fit of the measurement models. We chose the maximum likelihood option for normal theory estimator and robust methods for the non-normal estimators corrections. We utilized a model trimming approach to assess the fit of the measurement models utilizing SEM. The baseline theoretical model (Model 1) consists of assessing the fit of the structural model where the aggregated ownership construct (consisting of individual/ family ownership [IND_OW], corporate ownership [CORP_OW] and institutional ownership [INSTI_OW]), as well as the firm size construct (consisting of book value per share [BkVal_Shr] and number of employees [No_EMP]) together predict the firm performance objective construct consisting of financial returns orientation, capability generation orientation and leadership/behaviour orientation. These performance orientations were operationalized as return on equity (ROSF) and return on assets (ROTA) for financial returns, research and developmental expenses (R&D) for capability, and previous performance (ROSF_diff, ROTA_diff and R&D_diff) for behaviour/leadership.

Figure 2: Ownership size Performance Path Analytics



Although we did not specifically hypothesize ownership impact on firm size, as suggested in literature reviewed earlier, we included a two-stage model (Model 2) wherein ownership predicted firm size, and then both ownership and firm size predicted performance (See Figure 2). Model 3 assessed ownership-performance, while Model 4 assessed size-performance. The variables were allowed to correlate freely and, as can be seen, the theoretical model fit the data nearly perfectly for Model 2. The χ^2 (Chi-square) statistic was non-significant (χ^2 2477.675; d.f. 41; $p < 0.000$), and the fit indices were also adequate (CFI 0.635; IFI 0.649; MFI 0.955; RMSEA 0.047). Additionally, all of the path estimates were significant. Thereafter, we excluded the ownership and firm size relationship and allowed these to correlate freely while assessing the direct effects of ownership and firm size on performance (Model 1). The model fit the data nearly perfectly for Model 1 also. The χ^2 (Chi-square) statistic was non-significant (χ^2 2444.993; d.f. 41; $p < 0.000$), and the fit indices were also adequate (CFI 0.619; IFI 0.635; MFI 0.953; RMSEA 0.048). However, as can be seen from the fit indices, this model fit was marginally poorer compared to the previous model. Despite the good fit of these two theoretical models, and to clarify the impact of ownership on performance, it was important to test the models that assessed ownership-performance and size-performance independently. To do so, we trimmed Model 1 by first removing the firm size variables from the theoretical model, thus assessing only the ownership-performance relationship (Model 3). And, finally, we built Model 4 by including only the firm size and performance indicators. These models were compared to the theoretical model on the basis of χ^2 difference tests, and by examining any changes in fit

indices. Table 3 shows the fit indices for the models, and as can be seen from the table, the model assessing ownership predicting performance (Model 3) had the best fit based on the χ^2 difference tests and fit indices. Model 4 predicting firm size as the sole predictor of performance did not improve model fit, and actually deteriorated the model fits.

Table 3: SEM Model Comparisons Using Goodness of Fit Indices

	χ^2 (df) <i>p</i> < 0.0000	χ^2 diff (df)	Robust χ^2 (df)	RMSEA	CFI	MFI	IFI
Model 1 (Baseline) Theoretical model Performance–Ownership & Size	2444.99 (41)		388.32 (55)	.048 90% CI .041; .056	.619	.953	.635
Model 2 1. Performance–Ownership & Size 2. Size–Ownership	2477.67 (41)		388.32 (55)	.047 90% CI .040; .055	.635	.955	.649
Model 3 Performance–Ownership only	1637.922 (26)	807.07 (15)***	241.04 (36)	.039 90% CI .029; .049	.740	.980	.752
Model 4 Performance–Size only	2429.414 (19)	15.576 (22) ^{ns}	181.27 (28)	.049 90%CI .038;.060	.610	.978	.632

*** *p* < 0.0001 ns *p* value is non-significant

Based on the above model fit comparison, all four models have adequate fit, but it seems that the aggregated ownership model is the most parsimonious and has the best fit. However, bearing in mind that the size measures are not complete, this result must be interpreted with caution. In any case, Hypothesis 1 stating that aggregated ownership has a major impact on firm performance is strongly supported. To test Hypotheses 2 to 4, we conducted a path-analytical analysis of the six dependent firm performance variables, using the independent variables of aggregated ownership of the three types of owners, and the two firm size variables. The focus was on simultaneously testing all the hypothesized relationships, we assessed the model fit indices and the direction and significance of the regression coefficients. Model 1 assessed the relationship between performance and ownership variables. The theoretical model fit the data well. The χ^2 (Chi-square) statistic was non-significant (χ^2 2802.125; d.f. 15; *p* < 0.000) and the fit indices were adequate (MFI 0.964; IFI 0.235; RMSEA 0.070). Additionally, nearly all of the path estimates reported between the independent variables and the dependent variables were significant and in the expected direction. Results of the SEM that assessed the individual relationships presented in Figure 7 are tabulated in Table 10.

Table 4: Results of the Ownership-Performance Relationship Path Analysis

Relationship		Unstandardized Coefficient	Standard Error	P value p <	Std. Coefficient	Adj. R square
Dependent	Independent					
ROSF	Individual/Family Ownership	-0.054	0.162	ns	-0.009	0.085
	Corporate Ownership	0.549	0.193	0.005	0.075	
	Institutional Ownership	0.568	0.097	0.000	0.162	
	Number of Employees	0.001	0.000	0.001	0.096	
	Book Value Per Share	2.780	0.452	0.000	0.165	
ROTA	Individual/Family Ownership	0.019	0.064	ns	0.008	0.118
	Corporate Ownership	0.241	0.076	0.005	0.082	
	Institutional Ownership	0.265	0.038	0.000	0.187	
	Number of Employees	0.000	0.000	0.000	0.096	
	Book Value Per Share	1.454	0.179	0.000	0.215	
R&D	Individual/Family Ownership	471.697	1006.957	ns	0.110	0.326
	Corporate Ownership	513.131	1201.932	ns	0.010	
	Institutional Ownership	-482.188	606.543	ns	-0.019	
	Number of Employees	-21.923	0.890	0.000	-0.563	
	Book Value Per Share	-3390.198	2819.129	ns	-0.028	
ROSF_diff	Individual/Family Ownership	23.142	77.399	ns	0.008	0.023
	Corporate Ownership	-116.018	51.545*	0.001*	-0.034	
	Institutional Ownership	-135.892	46.622	0.001	-0.083	
	Number of Employees	-0.056	0.020	0.001*	-0.022	
	Book Value Per Share	-742.080	216.691	0.005	-0.095	
ROTA_diff	Individual/Family Ownership	8.403	16.527	ns	0.014	0.022
	Corporate Ownership	-34.672	19.727	0.000*	-0.048	
	Institutional Ownership	-39.912	9.955	0.000	-0.115	
	Number of Employees	-0.013	0.015	0.005*	-0.024	
	Book Value Per Share	-88.151	46.269	0.000*	-0.053	
R&D_diff	Individual/Family Ownership	1.000	0.000	0.000	0.000	0.134
	Corporate Ownership	1.000	0.000	0.000	0.000	
	Institutional Ownership	3.0E+07	2.10E+08	ns	0.004	
	Number of Employees	4.0E+06	3.0E+05	0.005*	0.366	
	Book Value Per Share	1.000	0.000	0.000	0.000	

* Robust Statistics Negative coefficients are denoted in red

Return on shareholder funds (ROSF) was positively and significantly related to percentage of shares held by institutional owners as well as corporate owners, but the effect was much larger for institutional owners. The size variables were also positively and significantly related to ROSF. Individual/Family ownership had no significant relationship to ROSF. Likewise, return on total assets (ROTA) was also positively and significantly related to percentage of shares held by institutional owners as well as corporate owners, but the effect was much larger for institutional owners. The size variables were also positively and significantly related to ROTA. Individual/Family ownership had no significant relationship to ROTA. Thus, Hypothesis 2 predicting a positive relationship between institutional ownership and returns is strongly supported.

Hypothesis 3 predicted a positive relationship between corporate ownership and capability orientation operationalized as research and development expenses (R&D). As R&D was coded as an expense, i.e. higher R&D expenditure implied a larger negative number, a positive co-efficient would imply lower R&D spending. As can be seen from the results, R&D had no significant relationship with any of the ownership variables and, in fact, the direction was opposite to the expected direction vis-à-vis corporate ownership. Thus, Hypothesis 3 was not supported. Finally, Hypothesis 4 predicted positive relationship between individual/family ownership and changes in previous performance, while the relationship between institutional and corporate ownerships vis-à-vis change in previous performance was predicted to be negative. As seen from the results, ROSF difference and ROTA difference are negatively related to institutional as well as corporate ownership and the size variables while individual/family ownership had a positive but non-significant relationship with ROSF and ROTA differences. R&D difference had a positive and significant relationship with all variables except institutional ownership. Thus, overall, Hypothesis 4 is partially supported.

The findings for changes in R&D expenses need to be interpreted with caution. Although consistent with the hypothesis vis-à-vis individual/family ownership and institutional ownership, the relationship to corporate ownership is also positive. Bearing in mind that R&D expenses are hypothesized to positively relate to corporate ownership, it is plausible that corporate owners too increasing change (increase or decrease) R&D expenses based on their capability generation requirement. Furthermore, all the coefficients for R&D_diff are extremely low. Finally, closer analysis of the data reveals that the squared term of change in R&D expenses (R&D_diff) has a low base rate and an abnormal distribution (N = 1497; Range = 4.0E+12; Mean = 2.15E+10; SE= 5.05E+08; SD = 1.95E+11) so the significance might be merely statistical artifact. It is important to state that, as can be seen from Tables 4, the different types of ownership, i.e. individual/family, corporate and institutional, have significantly different directionality and coefficient sizes vis-à-vis the dependent variables and, thus, overall there is strong empirical support for the assertion that different types differ in their preference for firm performance objectives.

As described above, most of the hypotheses generated from our framework were supported by the empirical data, in fact only Hypothesis 3 was not supported. We attempt a post-hoc rationalization of the hypothesis as well as opine on some of the possible interpretations and implications of all the findings.

Findings on R&D indicator: We used R&D expenses as a measure of a firm's orientation towards capability generation. As discussed in the measures section, the R&D variable might not be an effective operationalization of the capability generation construct. Some studies criticize operationalizing such measures as being tautological (Porter, 1994; Williamson, 1999). In addition to the possibility of operationalization misspecification, the findings are non-significant and in a contrary direction. As per the findings (see Table 4), corporate ownership was positively related to R&D expenses, though the co-efficient was not significant. Furthermore, individual/family ownership was positively but non-significantly related to R&D expenses. All other variables were negatively related, though only number of employees (No_EMP) was significantly related. What is interesting is that the adjusted R square value for R&D, i.e. the proportion of variance explained, was 32.6%, implying a major impact of ownership and size variables on R&D, though no conclusions can be inferred from this finding. We opine that the following might be the confounding factors in the present findings:

1. **Industry Effects:** As our research design was a single level (firm-level) analysis, we were unable to cater for any industry effect as that would require a multi-level structural equation modeling (ML-SEM) approach. Management literature accepts that industry has a critical impact of firm's R&D expenditure (Erwin, 2008; Juha, Markku, Thomas, & Shaker, 2009). Therefore, not controlling for industry might be the cause of the lack of supporting evidence.
2. **Year Effects:** Our data were for the year 2007 for public US corporations. As the effects of the soon to follow financial and liquidity crisis might already have been felt by the companies, R&D expenses might have been temporarily curtailed. There is a rich tradition of research linking R&D to organizational slack and debt holding (David, O'Brien, & Yoshikawa, 2008b). This also might be a factor confounding the finding.
3. **Data Size Effects:** As can be seen from the descriptive table (Table 5), R&D data were available for only 1536 firms and this nearly half the datapoint of all other variables. This too might be a contributing factor for the lack of finding.

In addition to the hypothesis discussed above, we would like to discuss the findings overall. First, as explained in the measures section, the operationalization of firm size was limited because of multi-collinearity issues. That issue by itself is of interest because, though we did not specifically model it, firm size might be a function of ownership. We attempted an explorative test of this relationship (Model 2 of the path-analytic model) and the model fit of size partially mediating the ownership-performance relationship was marginally better than the model (Model 1) that assessed the direct effects of size and ownership on performance. Finally, we think it is imperative to highlight the interpretation of the findings overall. Hypothesis 2 predicted positive relationship between institutional ownership and financial returns and the data support this assertion.

However, this does not necessarily imply that institutional ownership *results* in superior financial returns; it only implies higher institutional ownership is consistently related to higher financial returns. Some individual/family-owned firms might outperform all other firms, while other individual/family-owned firms might underperform and thus individual/family ownership does not have any consistent relationship to financial returns. At best, the inference might be that individual/family ownership might be variance enhancing performance-wise, while institutional and corporate ownership might be mean enhancing. Similarly, the findings of changes from previous performance (Hypothesis 4) also do not assert causality. To be able to ascertain causality, the analysis needs to longitudinally assess the changes in ownership vis-à-vis the changes in performance. Furthermore, the data set consisted only of US public firms for which ownership details were available and did not include privately held firms. As most of the privately held firms are individual/family owned or corporate owned, the possibility of selection biases in the findings cannot be ruled out. Finally, we specifically modeled the squared term of change in performance based on the literature, while the change might have been linear. Again, longitudinal studies might enable a clearer understanding of the relationship. In the next section, we go over some of the future research and managerial implications.

Implications and Conclusion

This study asserts that a firm's aggregated ownership, i.e. the type and respective concentration of the different owners, is an important determinant of the choice of governance mechanism, and important in identifying the firm's performance objectives. Utilizing the aggregated ownership model, and by simultaneously testing all the different hypotheses, this study is able to overcome the limitation of the owner identity studies and thus is a better assessment and operationalization of the ownership construct. Furthermore, as the effects on three different types of owners are simultaneously assessed, this framework might be able to explain the 'different cost advantages and disadvantages endogenous to ownership', i.e. the endogeneity issues (Demsetz et al., 1985) that confounds previous ownership studies.

However, the proffered broad typology of ownership is by no means complete or representative of all the different types of ownership types that exist worldwide. Thus, this study is but a preliminary step in assessing the impact of ownership on firm performance and corporate governance. We enumerate some possible avenues for future research as well some managerial implications below. Literature suggests that founder-led firms might govern differently from family-owned firms (Andersen et al., 2003) and future studies can assess

whether family-owned firms might operate more like the institution-owned firms, as compared to founder-owned firms. I opine that less common ownership structures, like co-operatives and employee ownership, might operate like founder/family-owned firms, yet with objectives closer to institution-owned firms. Likewise, institutional ‘owners’ like pension funds operate differently than professional investment fund (e.g. mutual funds, hedge funds) owners (Hoskisson et al., 2002; Woitke, 2002), whereas pension funds have relatively longer investment horizons and are more patient with their capital vis-à-vis investment funds, and thus might govern more like family firms. An ownership-objective mapping detailing some of the relationships discussed above is shown below.

Furthermore, within institutional ownership, wide dispersion (i.e. numerous institutional owners, each with relatively low concentration of holding) might enable the CEO to assume control disproportionate to his holdings, and thus govern more like the leadership-driven founder-owned firms. Even corporate owners might be distinguished as vertically linked or horizontally linked (related or unrelated value chain) in a manner similar to the Japanese vertical and horizontal keiretsus (McGuire et al., 2003). Though the horizontal keiretsus are centrally related to a bank, I imply the General Electric model, wherein one central corporation controls a multitude of partially owned subsidiaries, where some subsidiary firms have no relationship or commonality of function with some of the other subsidiaries. Future studies might focus on the characteristics of these categories to assess whether the ownership configuration performance objective relationship is better understood by further differentiation within these three broad types, and thus refining and building on the proffered ownership typology.

Another avenue for fruitful research might be to investigate the characteristics of government/state ownership, which might be ideology oriented domestically and financial returns oriented overseas (as in sovereign funds). These future studies can look more closely into all the possible ownership types, thereby augmenting the proffered ownership typology. Future studies operationalizing, testing and further refining the aggregated ownership construct are also called for. Alternatively, future studies may be designed to assess the effect of owner type at concentrated ownership levels, as well as devise methodologies for analyzing ownership effects in dispersed ownership configurations. Future studies defining and operationalizing the performance indicators that might enable clarity in measuring and understanding the full effects of ownership type on firm performance are also called for. Of special concern is operationalization of capabilities, as described in the discussion section. Some recent studies (Dutta, Narasimhan, & Rajiv, 2005; Jacobides & Winter, 2005; Ray et al., 2004) address this issue, and offer alternative viable methodologies.

Furthermore, the proffered model assesses the ex ante determinants of the performance objectives of a firm, and does not address the environmental constraints that reshape these objectives to define the ex post performance outcomes. Another interesting research stream might be the effect of macro-environmental factors that might determine the optimal ownership vis-à-vis some specific firm performance.

This study also has implications for managers, regulators and consultants as it highlights the importance of utilizing different yardsticks for assessing performance based on the aggregated ownership. The findings caution against imposing a homogeneous performance objective onto firms. Awareness and sensitivity to the ownership preferences might enable clarity in managing expectations as well as developing environments conducive to greater participation by private firms in the public domain.

Limitations

Apart from those mentioned in the discussion section, I would like to point out the following limitations of this research. Some studies (Lynall, Golden, & Hillman, 2003) assert that the life-cycle stage of a firm determines the performance objective. We do not explore the firm’s life-cycle and ownership relationship. However, it is possible that life-cycle changes co-move with ownership changes, and thus ownership and life-cycle stages might be closely interlinked. It is also possible that changes in ownership over time result in changes in performance that in turn are understood as the life-cycle of the firm. Future studies can focus on the extent, causality and direction of such a relationship. Also, our definition of ownership is limited to equity holding and we have not considered the claims of creditors or other stakeholders. Furthermore, we do not specifically address strategic alliances as a type of ownership, apart from the constituent corporate ‘owners’

of the alliance, though Folta (1998: pg 1022) asserts that these differ. Future studies might explore this issue in greater detail.

As, also highlighted in the discussion section, we did not specifically cater for industry effects as that would require a multi-level (ML-SEM) research design. Finally, the findings might not be generalizable to periods before and after 2007. Future research, specifically multi-level longitudinal studies, can cater for these effects.

Conclusion

In conclusion, this study offers an alternative multi-theoretical framework that might help resolve the mixed findings in ownership literature, and advances understanding of performance heterogeneity. This study commenced with reviewing the major theoretical perspectives in ownership literature to bring into focus the underlying assumptions and the shortcomings with regards to explaining ownership and its relationship to firm performance. Thereafter, building on existing owner-identity literature, we offered a framework that can describe as well as reasonably predict the ownership-performance literature, and is able to explain the mixed findings in literature. We also clarify the need to go beyond the 'largest shareholder as the owner' operationalization to develop the aggregated ownership model. We offer hypotheses on the components of the model and empirically test these on a sample of US public corporations and find overwhelming support for the model as well as the hypotheses. Based on our findings, we call for future research that goes beyond the mono-theoretic constraints of agency theory. We expect future research to fully develop and refine this multi-theoretic interpretation of the ownership theory of a firm. In conclusion, we assert that the heterogeneity in ownership directly impacts firm performance, and argue for including the different types of owners, distinct from the dispersed investors and managers in future studies on how ownership impacts corporations.

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