DEVELOPMENT AND VALIDATION OF A HYBRID MEASURE OF ORGANISATIONAL COMMUNICATION SATISFACTION

by

AMANUEL GEBRU WOLDEAREGAY

submitted in accordance with the requirements
for the degree of

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

COMMUNICATION

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF G C ANGELOPULO

CO-SUPERVISOR: DR Z T SELESHSI

JUNE 2013

Student Number 43640540

I declare that DEVELOPMENT AND VALIDATION OF A HYBRID MEASURE OF ORGANISATIONAL COMMUNICATION SATISFACTION is my own work and that all the sources I consulted have been duly acknowledged in the sources consulted section.

_____ JUNE, 2013

SIGNATURE DATE

(MR AG WOLDEAREGAY)

.

Acknowledgements

Connections, relationships and support are an important part of the normal doctoral experience, and deserve to be treasured. Many people helped in this project coming to fruition and I am thankful to all of them. First and foremost, I wish to record my most sincere gratitude and indebtedness to my promoter Professor George Angelopulo. Without his enthusiastic and motivating communication, insightful comments and scholarly helpfulness above and beyond the call of duty, I could not have gone this far. Dr Sileshi Zeleke, the joint promoter, was instrumental in easing the burden of local bureaucracy and providing network directions as well as useful ideas, and his contributions are appreciated. Professor Therésea Charmaine du Plessis, my interim promoter, was constructively critical and helped to put the dissertation proposal on firm ground. To her I say thank you for putting me in the right direction.

Professor Kitty Dumont gave me useful insights during her visits to Addis Ababa and her lectures on structural equation modelling at the Unisa regional learning centre were of immense help. To her too I must say a very big thank you. The Unisa e-librarian Dawie Malan was helpful beyond expression. The speed and accuracy with which he sent relevant literature was a warming assurance of his peerless professionalism. Marie-Hélène Bataille, then postgraduate course administrator in the Department of Communication Science, was a true professional communicator and I must acknowledge her important role in keeping me informed and included. The same must be said of MS van Gass, who recently took over as a replacement, and was also helpful in my securing a Unisa bursary to cover research expenses. To her too I wish to express my sincere indebtedness.

My research required the involvement of many friends and colleagues in academic environments. Alemu Hailu, Addis Ababa University; Woldemikael Weldemedhin, Ethiopian Civil Service University; Mulugeta Gebregziabher

Gebresellasie, Medical University of North Carolina; Solomon Harar, University of Montana; Barbara Byrne, University of Ottawa; David Kenny, University of Connecticut and Dennis Tourish, Robert Gordon University helped in numerous ways and I acknowledge them all with much gratitude.

Friends in the Addis Ababa Civil Service Fekadu Bekele, Berhanu Ludamo, Teshome Gebru, Teshome Adno, Mengisteab Alem, Aragaw Ademe, Gebre Amlak Desta, Abebe T. Haimant, Tewodrios Hailu, Hana Girma, Nesru Jemal, Girma Berhe and Getahun Dadi assisted variously in the data collection. Kidist Yeshitila worked out my handwriting and typed much of my literature with care and concern. They all deserve mention for their dependability and helpfulness, interest and inspiration.

Addis Ababa University helped finance my yearly studies at Unisa and my methodology workshop attendance at the University of Michigan in November 2011. I wish to thank the officers who were involved in the administration of graduate programmes, most importantly Professor Masresha Fetene, Vice President for Research and Graduate Programs, for taking an interest in my graduate education and providing assistance when requested. I would also like to extend my appreciation to Unisa for a research bursary which helped cover costs. I wish to thank Ms Glenda Buncombe, my language editor, for her professionalism and thoughtfulness.

Finally for her support, love and encouragement I must thank my wife Woynshet Ayele and my baby daughter Amen for being a new source of joy and energy in this demanding doctoral journey.

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

Key words and phrases

Analysis of Moment Structures (Amos)

Confirmatory factor analysis (CFA)

Eigenvalues

Exploratory factor analysis (EFA)

Informational satisfaction

Model fit

Organisational communication satisfaction

Relational satisfaction

Structural equation modelling

Z-scores

Summary

The purpose of the study was to identify and transform, as necessary, constructs of communication satisfaction and to develop a hybrid quantitative audit of organisational communication satisfaction for collectivist contexts that is both reliable and valid, using Amos Graphics for structural equation modelling. The objective was also to develop a full latent variable model and to test its fitness to the data collected from a random sample of civil servants across Addis Ababa's civil service bureaus.

The study comprised three sequential parts, namely pilot, exploratory factor analysis (EFA) (Main Study One) and confirmatory factor analysis (CFA) (Main Study Two). These were used as per the existing framework in instrument development and validation. The pilot study indicated the need for more robust data. After a series of tests, principal factor axis factoring with oblique rotation was used as the most appropriate for perceptual data, out of several options on the EFA menu. The initially hypothesised six-factor solution with the dimensions of horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction was found to be unfit for the data on conceptual and statistical grounds and psychometric analyses which involved the use of eigenvalues and the scree plot.

A more appropriate two-factor solution based on the more precise parallel analysis strategy was consistent with current research that communication satisfaction is best conceptualised in terms of informational and relational domains as operationalised using the EFA procedure. The two-factor solution led to the formation of a 17-item scale out of the original 30-item measure, with two latent dimensions namely relational satisfaction and informational satisfaction. The items of the new EFA-generated organisational communication satisfaction scale were renumbered consecutively and the scale was cross-validated on a

new sample of 288 civil servants from the Addis Ababa City Administration. The cross-validation necessitated model respecification and re-estimation.

The respecified model underwent validation at different levels. All seven aspects of validity, namely content validity, construct validity, factorial validity, reliability, convergent validity, discriminant validity and nomological validity, were addressed and found to be adequate. However limitations are also indicated as avenues for further enquiry.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

More than half a century of organisational research has found that the foremost variables that affect the work environment are factors related to psychological processes (Baskin, Aronoff & Lattimore 1997: 230). One of the most significant processes relates to organisational communication satisfaction, which is both an an outcome and at the same time a predictor dimensional variable (Chang 2006:201; Nuss 2005:119-124; Potvin 1991: 280). An understanding of not only how best this construct is conceptualised, but also how it is measured, is an important subject in organisational communication evaluation.

While the measurement of communication satisfaction has existed for more than half a century (Cusella 1984: 209), in recent years, there has been renewed scholarly enquiry into communication measures and their significance for today's changing organisational settings due to cultural, political, technological and other considerations (Gray & Laidlaw 2004:426). The revival of interest in measurement points to a need for a novel approach, namely the hybridisation of existing measurement instruments to come up with psychometrically sharper and more fitting measures to conduct better communication evaluation in the lesser studied and understood parts of the organisational world. Existing scales such as the Organisational Communication Scale and the Organisational Communication Development Audit Questionnaire are deficient in that they focus too much on communication as information transfer neglecting the relationship dimension which may be a far more important factor in collectivist organisations.

The resurgence of research into organisational communication instrumentation is also important at present because of developments in psychometric software that enable the development of instruments which are more psychometrically sound than ever before. Based on these instruments, model testing and validation can be done with great scientific confidence. Scientifically based modelling is in line

with the goal of organisational communication, which is "to develop theories that go beyond common sense" (Cusella 1984:294).

Structural equation modelling (SEM) in particular helps to develop predictive models of communication satisfaction and to take the field of organisational communication a step further (Anderson & Gerbing 1988: 411; Miller 2001: 152) from its present embryonic technical stage (Duck 19/7/2008; Miller 2008). This nascent stage is particularly true in Africa where studies on organisational communication satisfaction are either scattered or unsophisticated, although the continent's organisations have much to offer in terms of data and perspective.

In particular, the idea of communication satisfaction can be an important area of psychometric and theoretical interest in the context of high power distance civil service organisations in many African communities, where communication can be asymmetrical, inequitable and distressful (Gebru 2006:32). Ethiopia, as an African country, is no different, and the communication practices in its civil service bear the hallmarks of high power distance (Mekonnen & Mamman 2004:114; Desta 2008:28). Despite a wave of reforms[1], the civil service still represents a "marriage between profession and politics" coupled with a "dilemma of tradition and change" (Debela 2012: 3). For organisational communication scholars it represents an extremely novel research area. This offers fertile ground for relevant measurement instrument construction and model development as well as theory testing with regard to communication satisfaction.

[1] Ethiopia has embarked on numerous initiatives to modernise the public service since the 1990s. One of these was the Comprehensive Civil Service Reform Programme (CSRP) initiated in 1996 in line with the international new public management trends and was hailed as an "impressive blueprint for broad transformation" (Peterson 2001:138). Mengesha and Commons (2006:25) state that "real substantial and positive change in public service organizations" was noted, which others may find questionable given the small-scale nature of the study. A reading of the reform documents would show that the reform does not really recognise the place of internal communication as an important part of any meaningful reform.

In the present study, the Addis Ababa City civil service bureaucracy and the communication satisfaction experienced by those in the bureaucratic echelons were used as data to produce and test a hybrid measurement instrument as well as a model of organisational communication satisfaction. Selected relevant constructs and items were used from existing psychometrically comparable instruments.

1.2 NEED AND MOTIVATION FOR THE STUDY

Savolainem (2001:14) argues that the construct of communication satisfaction may have culture-specific traits. This was demonstrated in the Guatemalan study by Varona (2002:9-10) and the Japanese research by Koike, Gudykunst, Stewart, Ting-Toomey and Nishida (1988:102), who showed that there may be contextual features indicating cross-culturally based conceptualisations. This culture-based variability is possible given the relationship between emotion and culture (Kitayama, Markus & Kurokawa 2000: 450), indicating the possibility that the present scales of organisational communication satisfaction developed in the US may not be correct reflections of the conceptualisation of communication satisfaction in other cultures and countries. This lends support to the recommendation that research continue to investigate the factorial structure of communication satisfaction in differing contexts (Mount & Back 1999:413). To date “we do not know the precise number of the facets of satisfaction” (Carriere, Bourque & Bonaccio 2007:61) and hence cannot be confident about the present measures and their comprehensiveness.

Certainly, a number of communication evaluation scales of Western origin are currently in use in organisational studies. While there is absolutely no need to reinvent the wheel, the relevant aspects of organisational communication scholarship on Africa in general and Ethiopia in particular would require contextually situated theorising and instrument development.

The theorising would involve culturally relevant constructs, which are ultimately the bedrock of a model (Cusella 1984:293) reflecting a particular cultural context and attendant conceptualisation. Models themselves are reflections of conceptualisations of a particular context. Communication satisfaction in the Ethiopian civil service may in consequence be considered a legitimate topic for modelling. Even though Greenbaum, Hellweg and Falcione (1988:268) recommended that the relationship between models and their corresponding instruments be studied, there is very limited work in this regard. This study is therefore necessary in the sense at least that more recent SEM has barely addressed organisational communication satisfaction. The study therefore not only comes up with a hybrid measure suitable for the Ethiopian civil service, but also develops and validates a model of communication satisfaction based on the hybrid scale it develops using existing scales. In addition, it establishes the factor structure of organisational communication satisfaction, which a number of studies, most notably those by Crino and White (1981:836), Pincus (1986: 415), Gregson (1990:38), Clampitt and Girard (1987:12) and Downs and Hazen (1977:69), have shown to be unstable.

1.3 PURPOSE OF THE STUDY

The study has both psychometric and theoretical purposes. It addresses the often expressed concerns that the field of organisational communication has a demonstrated “lack of theoretical models” (Redding 1979: 312). It also intends to call for contextually valid measurement instrument development.

The study aimed to:

- develop and validate a hybrid measurement instrument for communication satisfaction based on existing communication evaluation instruments in the organisational context

- develop and test a model of communication satisfaction in the Addis Ababa civil service.

The dual aim takes up the recommendation of Greenbaum, Clampitt and Willihnganz (1998: 269) that there be “research linking organisational communication models and measurement instruments”.

1.3.1 Formulation of research problem

The research problem can be stated as establishing the psychometric adequacy of the proposed hybrid organisational communication satisfaction measurement instrument.

1.3.2 Hypotheses

The following hypotheses were formulated using the hybrid measure:

i) Organisational communication satisfaction responses can be explained by six factors, namely horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction.

ii) Organisational communication satisfaction is a measure of one general satisfaction factor rather than six dimensions.

iii) Organisational communication satisfaction is a two-dimensional construct.

iv) Each item-pair measure has a nonzero loading on the communication satisfaction dimension that it was designed to measure and a zero loading on all other dimensions.

v) The communication satisfaction dimensions consistent with the theory are correlated.

vi) Errors associated with each measure are uncorrelated.

1.4 THEORETICAL AND CONCEPTUAL FRAMEWORK

Human resource theory was considered to be the most appropriate to situate the phenomenon of organisational communication satisfaction in the reforming Ethiopian public service as used in this study. Whilst there are numerous theories of organisational communication, human resource management theory is a better choice for this study. Viewed from the cannons of a good theory, the human resource theory, more than such theories of organisational communication as uncertainty reduction, media richness, and sensemaking possesses greater theoretical scope, has more heuristic value and appropriateness (in terms of epistemological and ontological criteria). The chosen theory also boasts more openness, indicating that it is conceptually more consistent than organisational communication theories.

In organisations that value employee satisfaction, human resource theory provides principles and ways which today are considered ideal to run organisations and to satisfy employees (Miller 2003:59). The conceptualisation in this study is that perhaps the most important factor in communication satisfaction is the relational aspect involving firstly supervisors and subordinates and secondly employees horizontally. Human resource theory values the inputs of relational trust, respect, openness, positive feedback and a sense of solidarity (Varona 1996: 8). The mission of the human resource manager is to respect the humanity of the subordinate as expressed in communication with the worker which is ideally two-way symmetrical and characterised by warmth and closeness (Bolman & Deal 1991:359). The intimacy and desire for belonging are particularly suitable to collectivist organisational cultures which bear the hallmarks of the national cultures, namely intimacy and trust oriented (Hofstede 2002:225). The idea of power distance and uncertainty avoidance (UA) as rooted in collectivist society organisations (with East Africa scoring the highest UA index according to Hofstede (1991:113)) is also important for the human resource

manager to bring about a climate that is reassuring and respectful to the subordinate in order to bring the most out of them through relational strategies.

As the human resources frame would suitably indicate, the organisation can be likened to a family or clan, where relational feelings and needs are central. In such organisations, the manager has the role of liberation, fulfilment and empowerment of the worker (Jacobs 2012:5). These managerial functions are accomplished through communication which conveys the seriousness of intent as represented by the organisational leader. As Rogers and Rogers (1976:3) show in the most relevant way, “the behavior of individuals [including leaders] in organisations is best understood from a communication point of view”.

Human resource theory, which predicts organisational communication satisfaction, can be looked at from the angles of content, flow, channel and style (Miller 2003:57). The content of communication can address issues of innovation by subordinates who are encouraged to contribute ideas that help the organisation. This innovation communication can help the worker feel satisfied with their self-expression, especially when managers listen and value inputs. Social communication is also valued as evidence of the organisation being viewed as a social institution for human interaction. Social communication, as opposed to professional or strictly job-related interchange, is communication that occurs in social spaces or contexts as may be exemplified in mediated forms by the users of social media.

According to Miller (2003:58) directionally, communication in the human resource organisation flows downward, upward, horizontally and diagonally. The multidirectional flow of information is assumed to enhance the communication satisfaction of the workforce, which is afforded the opportunity to use multiple lines and sources of information for the attainment of satisfaction.

The channels of communication as used in the human resource line of thinking are multiple and context dependent, and are therefore likely to lead to the highest possible degree of communication satisfaction. Media richness theory suggests that different media have different levels of abilities for producing communication satisfaction. Rich media such as face-to-face communication as valued in human resource organisations are able to produce relational and informational satisfaction between subordinates and superiors (Byrne & LeMay 2006). The advantage of rich media is also related to uncertainty reduction and ambiguity avoidance as integral elements of communication satisfaction (Simon 2006:349). Rich media as typified by face-to-face communication may be more appropriate to collectivist organisations where intimacy, trust and uncertainty avoidance are valued. As Short and Williams (1983: 341) indicate, the richness of particular media may relate to degrees of humanness and warmth, which may have implications for affective satisfaction in collectivist organisations.

The style of communication also has relevance in human resource theory, which suggests that informal communication is more likely to produce communication satisfaction for the subordinate (Miller 2003:59). Formal communication and its implied detachment may not address the desire for more equality by subordinates and their need for affiliation and inclusion in the social organisation. Power distance as a cultural reality in collectivist organisations does not necessarily suggest that it is enjoyed by subordinates. In fact, it has been noted that informal communication has become more central to ensure the successful conduct of business in present-day organisations (Baker 2000).

In brief, human resource theory emphasises that both relational and informational elements would explain as well as predict the communication satisfaction of subordinates in the modernising Addis Ababa City civil service sector.

1.5 METHODOLOGY AND RESEARCH DESIGN

As Miller (1983:310) argues, methodology denotes a body of knowledge as employed by researchers to assign explanations and analysis to techniques of research, indicating assumptions as well as merits and drawbacks. Johnson (1994:174) says that selecting a particular methodology out of several is a critical element in the research endeavour. It is obviously very important for the researcher to decide which methodology fits a particular research project best.

Quantitatively oriented communication research, the positivist brand of research, employs the scientific method which uses the criteria of objectivity, rigour, hypothesis testing, consistency of results as well as causality (Miller 2001:144-145). This is aimed at discovering patterns and systems and generalising to large populations. There is often conceptual direction and later explanation provided by a particular theory (DeCoster & Lichtenstein 2010:229) as in the case of construct explication (Meier 2008:116) and development of a measure as an observed score (Edwards 2003: 313). The conceptualisation and measurement involved have to agree essentially.

In recent years, tied to software engineering developments (Schalles 2013: 95), the most recent modelling technique in organisational communication has become structural equation modelling, as demonstrated in practice by Iyer and Israel (2012) and others (e.g. Gray & Laidlaw 2004). SEM and its principal function confirmatory factor analysis (CFA) have been shown to be significant in research on instrument validation (Anglim 2007:4) and more recently have come to be mandatory in scale construction (Bowen & Guo 2012:1). A particular benefit of SEM is the ability to measure error and thereby overcome threats to validity (Aragon & Gesell, 2003:232) in studies of constructs such as communication satisfaction.

In this study, a progression from EFA using SPSS 20 is made toward CFA involving Amos 20 to identify factors for the hybrid measure of organisational

communication satisfaction and to validate the proposed model based on the factors identified and the paths implied in the set of hypotheses forming the model.

The EFA steps are shown under 5.2.1 and the CFA procedure is presented under 5.2.2 in chapter 5.

The descriptive/cross-sectional design as employed in this study follows Miller's recommendation (2001:152) that self-reports obtained from surveys of communication processes are the best means of securing perceptual and attitudinal data and their suitability for the purpose (HCU 1999:3). Indeed, surveys have positive features (Babbie 1992: 282; Du Plooy 2009: 190; Groves, Fowler, Couper, Lepkowski, Singer & Tourangeau 2009: 39-47; Hirschheim 1985:33; Hayes 1998:23; Downs 1988: 80; Kraemer 1993:77) that make them particularly suitable for quantitative audits, including control over sampling, which requires a particular design.

The sampling design for the study is based on Ullman (2006), Kim (2005) and Leedy and Ormrod (2005) and their authoritative sample size and type recommendations for instrument development as demonstrated in the SEM methodology chapter.

1.6 CONTRIBUTION OF THE STUDY TO THE FIELD OF COMMUNICATION

In reference to organisational communication in particular, "accusations of a perceived lack of theoretical infrastructure" (Allen, Tompkins & Busemeyer 1996:383) have been reported.

This perception of theoretical inadequacy can be addressed by a fresh theoretical contribution to attend to the often elusive and complex modelling of communication satisfaction. In this study, theory is demonstrated to be very

important and indications are made about the need for better theories to guide research.

At the methodological level, this study has not only used SEM, which is the latest in instrument development and validation, but also demonstrates the use of parallel analysis as the best strategy in the determination of the number of possible dimensions to be derived from an EFA dataset.. The application of parallel analysis is felt to be an appropriate response to the call made by Greenbaum, DeWine and Downs (1987:141) about the need for organisational communication psychometrics “to help start a process that may create a milestone, moving the discipline to generate better research through more effective instrumentation”.

A practical contribution of this study relates to the need for a periodic conduct of communication audits in the Addis Ababa civil service, where to date, it is virtually unknown. It addresses the significant civil service setting and its actors and vets relational ailments. It also suggests curative or rather ameliorative recommendations or provides such data for inference by others. Although a scholarly field may not be judged by purely utilitarian criteria, organisational communication as represented in this study and as a subject of scholarly pursuits, consistent with its early history, addresses ways of living full lives in working environments. It explores the full range of emotions in the workplace as well as showing the place of communication in shaping or modifying affective states in positive ways.

Critical theorists have called organisations oppressive settings (Magalhaes, Andreoni & Engenharia 2011:1) whose projection of workers as the “greatest asset” is simply bogus. This oppression may be widespread in many African institutions as a result of much of the continent’s sociocultural and sociopolitical level of development. In such oppressive settings the oppression can manifest itself in several ways, including the ways workers are communicated to and

communicate amongst themselves. If communication research can find ways to transform communication dissatisfaction into contentment and other desirable organisational outcomes, then there is a case for claiming relevance and usefulness. Despite the pointed focus on psychometric and theoretical issues, the present study seeks betterment of the practice of communication itself and organisational praxis (cf Freire 1986:36).

1.7 DEFINITION OF KEY CONCEPTS

A number of key concepts are central to the present study. These are both theoretical and conceptual and they refer to concepts as they are used in this study.

A *dependent variable* is a variable whose score depends on the role of the independent variable/s. Also called an outcome variable, it is a principal variable that is addressed as the main issue in an investigation (Sekaran 1992:65). For instance, it may be argued that communication satisfaction levels may be dependent on the age or gender of the person studied.

Amos (Analysis of Moment Structures) is a software package used in SEM, in the specification and analysis of models (Byrne 2001:14). It is friendlier than other packages with a similar function. This study used the latest version - Amos 20.

An *independent variable* (also called a predictor variable) is a variable that explains the scores on a variable or predicts any such scores (Keyton 2001:378). Variables such as gender and age may be taken as independent variables in communication satisfaction research because these can influence communication outcomes rather than be influenced.

An *observed variable* is a variable which can be directly observed, such as the scorable items of a questionnaire (Byrne 2001:4). Observed variables are

different from constructs because they can be assigned a value directly or be measured. Constructs can only be measured indirectly through observed variables.

A *scree plot* is a graph of the eigenvalues showing several bends or breaks in the data and eventually flattening out and forming a “scree” or bottom (Costello & Osborne 2005:3). The number of points *above* the elbow normally represent the number of dimensions that should be retained. However, in the context of this study the scree plot is just one technique and in this respect more accurate tools are used.

Communication climate is the communication atmosphere in an organisation that decides whether communication processes and events are constrained or relaxed (Buchholz 2012:3). Communicational climate relates to whether vertical, horizontal or diagonal communication is fraught with inhibitions or whether there is a relaxed exchange. Communication may be deemed closed or open depending on factors such as interpersonal trust without which there can be hardly any open communication.

Communication satisfaction is a multidimensional construct referring to the gratification obtained from successful informational and relational communication (Putti, Aryee & Phua 1990: 45). It denotes freedom of information exchange in the organisational environment as well as opportunities for reception of information and relationship development. As indicated in the definition above, communication satisfaction has both relational and informational elements, but the relational dimension may at times be more important in the sense that a relationally satisfied worker may have positive communication feelings and information may be less important or pressing. This is the case of collectivist cultures as exemplified by sub-Saharan African countries including Ethiopia.

Confirmatory factor analysis (CFA) is a statistical test of the relationship between observed variables and latent constructs designed to confirm a hypothesised

model (Anderson & Gerbing 1988:411). According to Suhr (2009:1), “CFA allows the researcher to test the hypothesis that a relationship between the observed variables and their underlying latent construct(s) exists. The researcher uses knowledge of the theory, empirical research, or both, postulates the relationship pattern a priori and then tests the hypothesis statistically”.

Construct is “a conceptual term used to describe a phenomenon of theoretical interest” (Edwards & Bagozzi 2000:156). Constructs may be of various categories - cognitive, attitudinal or emotional – describing phenomena experienced by people (Freeze & Raschke 2012: 1484).

Exploratory factor analysis is a psychometric technique employed to discover the construct structure underlying observations gathered using a scale. As the name implies, exploratory factor analysis leads to the identification of factors, or latent variables as they are also called (Costello & Osborne 2005). In this study, exploratory factor analysis is used to determine the number of factors that constitute the construct of organisational communication satisfaction.

Job satisfaction is a hedonistic experience obtained from a cognitive and affective appraisal of one’s employment (Thompson & Phua 2012: 275). A global satisfaction with work represents a totality of satisfaction scores for the constructs revolving around job satisfaction. This can vary depending on the theory employed and the instrument developed in accordance with a particular theory (Gebru 2006:6).

Latent variables are constructs not directly measured or observed. They are measured indirectly by linking them to observed variables that appear on a questionnaire to represent the constructs. For instance, the latent variable communication climate can be measured indirectly by assigning values to the items that are specifically related to the particular latent construct (Byrne 2001:4).

Multiple regression is a statistical test (included under the umbrella of SEM) involving associations between a single dependent variable and two or more independent variables to make inferences and predictions (Robson 2002:431). Multiple regression helps to identify antecedents and correlates of organisational phenomena such as communication satisfaction. Multiple regression does not take into account error and therefore is less robust than SEM.

Power distance is a cultural condition in which inequality among community members is accepted as normal. Power is concentrated in the hands of a few, and this is also reflected in the communication between subordinates and superiors (Samovar, Richard, McDaniel & Roy 2012:189).

Psychometrics is the study of the conceptualisation and construction of measurement instruments and tests (Michell 1999: 54). Psychometrics is applied to content selection, observation, reliability and validity issues in measurement.

Structural equation modelling (SEM) is an advanced statistical tool most suitable for theory development and the testing of a hypothesised factor structure in a model (Schumacker & Lomax 2004:167; MacLean & Gray 1998:1). Model development using SEM involves the use of a relevant theory coupled with existing empirical research in the area of interest to plot relationships between latent factors and observed variables before the model is tested for adequacy or fit (Byrne, 2001:6).

The eigenvalues greater than one rule is an often-used factor retention criterion. Eigenvalues represent the amount variance as explained by an additional factor (Darlington 2012:1). In other words, eigenvalues are measures of variability in an EFA dataset. Also called Kaiser's rule, it takes into account the variability accounted for by a particular dimension. Low eigenvalues indicate insignificance of a factor to account for variance in a dataset. In the context of this study the eigenvalues rule was found to be less important than parallel analysis.

1.8 PLAN OF THE REMAINING CHAPTERS

CHAPTER 2: ORGANISATIONAL COMMUNICATION SATISFACTION

Chapter 2 deals with communication satisfaction as a construct, its emergence as a unidimensional construct and its eventual maturity as a multidimensional factor in the organisational communication literature. A multidisciplinary approach is employed to outline satisfaction with organisational communication from the angles of behavioural psychology, philosophy and communication. Numerous definitions are provided to put in context the meaning and significance of the construct.

CHAPTER 3: CONSTRUCTS OF COMMUNICATION SATISFACTION

Chapter 3 further takes up the multidimensional view of organisational communication satisfaction. This includes the constructs of directional communication satisfaction as exemplified by forms of vertical and horizontal organisational communication. Other constructs are also demonstrated, including job satisfaction, trust and communication climate as significantly influencing communication satisfaction. These constructs are demonstrated to be important elements of the conceptualisation and measurement of organisational communication satisfaction.

CHAPTER 4: COMMUNICATION AUDITS

Chapter 4 builds on the conceptualisation of communication and relates it to evaluation of communication satisfaction, which forms the subject of this particular chapter. The idea of communication audits is introduced and the various functions outlined together with the areas communication auditors would normally find interesting. The chapter also presents contemporary approaches to organisational communication auditing with a focus on functionalism as particularly suitable to quantitative audits. The chapter further identifies a

conceptual gap and proposes a theory of communication auditing to fill the lacunae in the theoretical literature on the subject

CHAPTER 5: STRUCTURAL EQUATION MODELLING METHODOLOGY

Chapter 5 as a core section of the study presents a methodological framework for the study. It justifies the use of SEM and particularly confirmatory factor analysis as the chief tools for the development and validation of a hybrid measure of communication satisfaction. Exploratory factor analysis and confirmatory factor analysis, which form SEM, are indicated as the core ingredients of instrument development. The steps for conducting EFA are outlined, followed by a demonstration of how this analysis is performed. Also, the nature of factor analysis, criteria employed in EFA for factor determination as well as the different rotation methods are discussed. CFA as the most important use of SEM/CFA is discussed in relation to scale development and validation. The non-statistical procedure of hybridisation steps as related to construct selection is presented. The steps employed in SEM/CFA are also shown.

CHAPTER 6: RESULTS OF THE STUDY

In this chapter, results of the analyses of the three interrelated studies: the pilot, the EFA (Main Study One) and the CFA (Main Study Two), are reported. In addition to descriptive statistics for all the studies, there is a report of the reliability coefficients, normality tests and the number of factors obtained using parallel analysis, the scree plot and the eigenvalues > 1 rule. The EFA in study results is followed by the logical sequel of CFA in Main Study Two in which a model is specified, identified, estimated, assessed and respecified. The results chapter also includes a validation of the new measure of organisational communication satisfaction.

CHAPTER 7: SUMMARY, DISCUSSION, LIMITATIONS, CONCLUSIONS AND IMPLICATIONS FOR FURTHER RESEARCH

This last chapter summarises and reviews the findings of chapter 6, but more importantly discusses the validated model of organisational communication satisfaction as well as the psychometric properties of the hybrid measure in the context of human resource theory, which is used as the conceptual bedrock for the study. The chapter also discusses the limitations of the study in relation to literature, data, methodology and theory, and suggests avenues for a progression of research based on the limitations identified in the current study.

1.9 SUMMARY

Chapter 1 introduced and put in a research context the organisational construct of communication satisfaction. The need for the development and validation of an organisational communication evaluation instrument for the Addis Ababa civil service was problematised. Also, the relevance of not only EFA, but also the more advanced tool of CFA, was highlighted as related to instrument hybridisation and validation. The steps employed in SEM were also indicated, together with fit indices employed to verify model adequacy.

In the next chapter, the nature of organisational communication satisfaction as a construct is discussed at some length. In particular, an interdisciplinary approach as employed in the chapter shows insights obtained from cognate fields and how multidisciplinary perspectives can enrich our understanding of the construct of organisational communication satisfaction.

CHAPTER 2: ORGANISATIONAL COMMUNICATION SATISFACTION

2.1 INTRODUCTION

The contemporary workplace is being humanised in a variety of ways and there is now frequent reference to positive organisational concepts such as democratic communication (Nobile 2008: 3), workplace democracy (Zirakzabeh 1990:109), quality of work life (Cascio 1986: 25) and two-way symmetrical communication (Ledingham 2003:190) or dialogic communication (Botan 1997:196). All imply concern for and the need to bring about a satisfying work environment which includes a significant sense of fulfilment and satisfaction in terms of communication.

This chapter presents a broad conceptual, theoretical and philosophical framework of organisational communication satisfaction. In preparation for the later chapters, communication satisfaction as it relates to organisations is first defined and conceptualised as a broad construct and then its multidimensional character is demonstrated. Seven theories, approaches and philosophical positions are then discussed. These represent different levels of abstraction and shed light on our understanding of organisational communication satisfaction. The theories, which are demonstrably interconnected, are evaluated in terms of their power to shed light on, and spell out in appreciable detail, the construct of organisational communication satisfaction. But first an overview is presented to provide a genesis and development of the construct in question.

2.2 OVERVIEW OF ORGANISATIONAL COMMUNICATION SATISFACTION

The coining of the term “communication satisfaction” is attributed to Level (1959) and his doctoral dissertation on communication in the banking industry. Since its introduction, the term has been conceptualised as a perceptual and cognitive evaluation of the degree of contentment ascribed to a particular communication experience in an organisational setting (Redding 1972: 144). Satisfaction is understood as an affective state produced as a consequence of particular stimuli in a particular environment and the reinforcement of attendant behaviours (Hecht 1978b: 52). According to Nakra (2006:42), communication satisfaction is also conceptualised as:

> … the summing up of a person’s satisfaction with information flow and relationship variables within an organisation and provides an operational means of determining managers’ and employees' comprehensive perceptions of communication in their organisational contexts.

Communication satisfaction is also understood as a worker’s gratification with diverse elements and aspects of the organisational communication ritual (Clampitt & Girard 1993:84). Hecht (1978b:52) has argued that there is a correspondence between the degree of uncertainty removal and the communication satisfaction derived from the positive change from ambiguity to certitude.

The pleasurable experience of communication satisfaction may relate to both receptive and productive communication experiences in relation to set goals. The distinction includes oral or written expression and aural and perusal practices. Since a great deal of organisational communication is strategic, any evaluation of a communication experience may be measured against attainment of communication goals which may lead to comfort or their absence. In a broader sense, organisational communication satisfaction is tied to being adequately comfortable with organisational communications, organisational media and interpersonal communication experiences (Pace & Faules 1994:113).

There is considerable theoretical concurrence that satisfaction represents an internal reactive state to the actual or perceived milieu (Hecht 1978b: 54). It connotes an evaluation of a communication situation vis-à-vis the self and self-interests in realms such as strategic self-presentation and self-defence through communication. Whilst much of the satisfaction in organisational communication is contentment with purposive communication in occupational environments or the sphere of strategic communication, communication does not have to be consistently strategic. It can also be an innate human need as it has been throughout pre-capitalist society and the more individualist societies that evolved. Rubin, Perse and Barbato (2006: 63) view communication as an engagement with any one or more of the following: joy arising out of conversational experience with others, fondness or joy derived from expressive and appreciative communication, “affinitive display”, belonging, or conversing to manage the affective consequence of solitude and lonesomeness, flight, i.e. avoidance of stressful functions or tasks, respite or relief or let up, and power or control over life or work situations.

These interpersonal communication motives do relate to organisational communication motives of individual workers and have implications for communication satisfaction in the workplace. In the study by Rubin et al. (2006:65), affection, pleasure and relaxation motives were most prominently correlated with communication satisfaction in the interpersonal realm. Wilkens and Tim (1978:109) have noted that humans value a ‘stroke’ which is “any act implying recognition of another’s presence” (Berne 1964: 15). One such possible act may be conversational attention or validation received from a superior or a colleague or colleagues. There may be interpersonally differing stroke needs which may be linked to emotional chemistry or personality. This may in turn relate to potential differences for satisfaction with communication.

Thus, in a more comprehensive sense, communication satisfaction is “the overall degree of satisfaction an employee perceives in his total communication

environment" (Redding 1972:429). However, such a general view of communication satisfaction does not serve to elucidate the multiplicity of separate and interlinked communication experiences in the complex organisational environment. As will be delineated later in this chapter in section 2.3, the complex phenomenon of satisfaction may be understood from a number of conceptual lenses (Anderson & Martin 1995: 253).

Even if the theories do explain the nature of satisfaction in the organisational interpersonal context and studies into the communication satisfaction construct have spanned more than three decades, the subject of communication satisfaction and its correlates remain insufficiently studied and understood. This is unlike the area of job satisfaction which has been the subject of extensive empirical and theoretical scholarship (Pearce & Segal 2004: 3; Pincus & Rayfield 1989:185).

2.3 COMMUNICATION SATISFACTION AS A MULTIDIMENSIONAL PHENOMENON

The earliest definitions of communication satisfaction suggested its unidimensionality. For instance, Thayer (1969:144) viewed communication satisfaction as "the personal satisfaction a person experiences when communicating successfully". Redding's meta-analysis of the literature in 1979 also revealed a similar perception of communication satisfaction as a unidimensional construct.

Thus satisfaction with communication was conceptualised in a unidimensional sense as the appraisal gap between a person's ideal and actual satisfying informational communication experiences (Pace & Faules 1994:113). However, this understanding of communication satisfaction as a mere meeting of information needs leaves out the important dimension of relational satisfaction, which has an essential affective take.

A multidimensional view of communication satisfaction first surfaced in a theoretical paper by Downs, Hazen, Quiggins and Medley (1973:5), which set the scene for advances in the reconceptualisation of the construct. A factor analysis of communication satisfaction (Downs & Hazen 1977: 68) gave the multidimensionality of communication satisfaction some grounding, with multiple dimensions emerging which were in essence relational and informational. While it is well established that communication satisfaction has both informational and relational facets, the relative importance of the facets remains undecided. How many dimensional units communication satisfaction exactly encompasses remains equally unclear (Pearce & Segal, 2004:5).

Although many researchers have supported the multidimensionality view and attested to its psychometric soundness (Ahmed 2006:33), owing in part to the robust datasets used (Clampitt & Girard 1993:97), the stability of the multidimensional structures proposed or validated has been disconfirmed in a number of studies.

For instance, Pincus (1986:403) does not support the validity of the seven-factor structure of the communication satisfaction questionnaire as originally stipulated. Furthermore, Clampitt and Girard (1987:6) found a five-factor communication satisfaction structure as more valid, triggering further validity studies into the questionnaire. Later Gregson (1990:39-40) identified a three-factor solution. More recently, Deconinck, Johnson, Busbin and Lockwood (2008:45) disconfirmed the convergent and discriminant validity of the construct and indicated that the separate facets of communication climate, media quality and co-worker communication could be compressed into one dimension. Despite the demonstrated utility of the communication satisfaction construct, the recommendation in the research literature is that “much remains to be done” (Clampitt & Girard 1993:100).

The different communication satisfaction evaluation measures tap different aspects of communication using different constructs. Whilst the myriad constructs represent conceptualisation distinctions, at the same time they do not always represent conceptual exclusivity but a measure of overlap too. It may be argued, for example, that several constructs in the satisfaction domain can be squeezed into relational and informational dimensions. It is tenable that communication satisfaction can only relate to either relational or informational domains or combinations of both (Pincus 1986:415).

Also, the way the relational and informational aspects are conceptualised has been shown to have cultural dimensions (Varona 2002:8). Varona's findings show that "communication satisfaction occurs when ideas are exchanged within a climate characterised by trust, respect, support, honesty, constructive feedback and mutual understanding". The explanation lies within the fabric of the Guatemalan culture which may be taken as typical of collectivist cultures and their value systems. In such cultures and where the organisational culture may be a reflected extension, the relational function of communication may be far more important than the other functions of communication, viz. aspects of professional communication including innovation and production.

In fact, as classical theories of organisational communication would predict (and as expected in high power distance cultures like Guatemala's) innovation is not an important value, but instead values such as deference to power and compliance may be the norms (Miller 2003:17). In contrast to individualist cultures which also typically have low power distance, collectivist cultures value affiliation, closeness and sharing (Hofstede 2002:100-5). The issue of high ambiguity avoidance typical of such cultures also means that members do not engage in dissenting behaviour and instead focus on a consensual group stand. In fact, relationship may be everything and when it degenerates, information communication would naturally suffer both quantitatively and qualitatively.

Interesting conceptual work (Hecht 1978a:260) shows the importance of changing contextual variables in understanding communication satisfaction, but the interconstruct dynamics in the dimensional categories of communication satisfaction is less clear (Pincus 1986: 402). The dynamics can also include communication/relational dialectics which can impinge on communication satisfaction in the context of interpersonal dynamism (Sahlestein 2006:142; Rawlins & Holl 1988:32; Griffin 2003:50) in the organisational milieu.

The next section will place in a broader conceptual, theoretical and philosophical context the nature of organisational communication satisfaction.

2.4 PHILOSOPHICAL AND THEORETICAL PERSPECTIVES ON COMMUNICATION SATISFACTION

Since the study of satisfaction is highly interdisciplinary, it depends on diverse fields such as sociology, psychology, economics and organisational studies in general. While satisfaction studies borrow heavily from the insights gained in the diverse fields of the social sciences and the humanities, they nonetheless have features that are discipline-specific (Newsome & Wright 1999:161). From among the various relevant disciplines, philosophy offers perhaps the most novel conceptualisation of communication satisfaction with relevance to organisational communication, as demonstrated in 2.4.1 below, which should fill the gap in the organisational communication satisfaction literature.

2.4.1 Desire satisfactionism

Desire satisfactionism is akin to the idea of needs theory, to be discussed under section 2.4.3. Simple desire satisfactionism holds that a person's wellbeing is ultimately a function of the satisfactions or frustrations of their desires. This perspective can relate to theoretical discussions of communication satisfaction, most relevantly to grapevine communication satisfaction and the ethical criticisms

surrounding this dimension of communication satisfaction. According to Heathwood (2005:92), balance of desire satisfaction over frustration represents the number, intensity and duration of desire and how much these aspects matter in accordance with the simple desire satisfactionism theory. Although originally a welfare theory, the latter theory can be extended to the communicative realm. Hence reference can be made to the amount of information sought, the intensity of the information needed and how long that informational desire persists. The desire may equally apply to the number of human relationships sought, the closeness of the ties or frequency of social contacts or the duration or length of interactions. Contextually, frustration would relate to the deprivation of human company or to insufficiency of contact/interaction relative to the need and the strength of affinity needs a worker seeks, which may change over time.

Thus a discussion of changing desires is also relevant. Extended to communication, it may be that information sought is related to a particular temporal frame and proves the desire to be contingent in a temporal sense. In other words, there is a time-based need for particular information which may no longer be a need once the particular time in question elapses. The appetite for organisational news may be one such time-bound desire, much like other news that is perishable and of no consequence once it serves the contingent need or has temporally limited utility or value. The derivative argument therefore is that satisfaction can be an atomistic issue and any measure of it a mere reflection of a particular duration, not a longitudinal phenomenon. Relationship satisfaction may too have a temporal dimension and be affected by changing desires as relational dialectics would suggest (West & Turner 2012). This exciting theory of relational dialectics predicts that since relationships involve a bundle of paradoxical desires, including intimacy/independence and novelty/predictability, there is a dialectical flux expressed as "the unpredictable, unfinalisable, indeterminate nature of personal relationships” (Griffin 2003:161) in the work environment. The dynamism of the workplace embedded in a temporal space

can mean career rises and falls. These can have relational implications for workplace friends, even if there may be thoughts of relational ethics.

In addition to temporal aspects of satisfaction, Heathwood (2005:87) also raises the idea of “unworthy desires” which nonetheless may be worthy needs for the particular person, who may attain satisfaction once these “defective desires” are met. Heathwood (2005:425) mentions “malicious desires” which, in the context of the organisational milieu, would include aspects of grapevine communication. This includes rumour-spreading with the malicious intent of defaming and discrediting organisational rivals or betters. This may take us to the idea of organisations as political environments in a metaphorical sense. As part of the political benefit, it can be said that rumour is not necessarily bad as it helps the prediction and calculation of transactional risks with colleagues whom we may come to know more about through the grapevine (Dunbar 2004:174). Also of relevance are “degrading desires” (Moore 1993:146), such as addiction to pornography in the workplace or indulgence in inappropriate communication using organisational media. Yet denying access to interested organisational members on account of the communication material sought not being “prudentially good” for consumption may violate the principle of unrestricted desire satisfactionism (Lukas 2011:2).

The unbounded idea of simple desire satisfactionsim is also relevant. Heathwood (2005: 91) argues that there are (or should be) no limits to the satisfying atoms or elements that fall within simple desire satisfactionism, which postulates that the fulfilment of subjective desires is what constitutes good life. All desires without any qualification, ethical or non-ethical, good or bad, come under the rubric of the theory and so the theory is actualist in so far as it relates to all subjective desires that are interpersonally varied. Variously conceived and communicationally relevant “ill-informed”, “irrational”, “base” and “poorly cultivated” desires, as articulated by Heathwood (2005: 487), can all have satisfaction implications. In other words, these needs not being met may produce frustration for the diverse

value bearers involved. The evaluative labelling of desires is thus in discord with the “unrestricted” desire satisfaction view which holds that desires are subjective and no judgemental classification would serve any useful purpose (Dorsey 2012:270). This latter view is shared by several philosophers, including Sidgwick (2010:111) and Hobbes (1994:28). Any discussion of communication ethics is thus irrelevant to simple desire satisfactionism. Indeed, organisational communication ethics has been marginalised (Redding 1996:18) and treated as fringe (Seeger 2001:2). Also peripheral is a discussion of ethics in economic conceptualisations of satisfaction, as section 2.4.2 shows.

2.4.2 The economic perspective

It may appear at the outset that economics is too remote to provide conceptual clues to understand communication satisfaction, but this is not the case as revealed in the literature. Since classical times, utility in economic circles has been viewed as “the feeling of pleasure and pain” and a “quantity of feeling” (Jevons 1874:2). In more recent economic literature, Levy-Garboua and Montmarquette (2007:5) have conceptualised satisfaction as “utility”. Satisfaction is conventionalised as subjective wellbeing derived from scales of affective wellness, which denotes the difference between experienced utility and normative expectations.

According to Marshall (1920:78), utility is conceived as correlative to want/desire, which of course cannot lend itself to direct measurement. Therefore through indirect inference economists can study and measure satisfaction of needs and wants. A common conception of utility is an indication of relative satisfaction arising out of consumption, and utility may logically increase or decrease per additional consumption. Utility is often measured through arithmetic calculations. The quantification does not leave out the meaning of utility as “the feelings of pleasure and pain” (Bentham 1907:4) and a “quantity of feeling” (Jevons 1874: 12). Utility as a quantifiable subject may relate to the quantification of communication satisfaction or information satisfaction using scales as reflected in

measures that ask amount of information sought versus obtained. In organisational communication, this may relate to the value of organisational publications, or informational usefulness of the intranet as perceived by organisational members. Thus relevant references are made to reader satisfaction reports in business media (Readership Institute 2012).

The related idea of marginal utility is of particular importance to discussions of communication satisfaction in relation to the meeting of information needs in an organisational context. According to Martin and Sell (1980:233), the value (utility) of information is contingent on factors such as its abundance, overabundance or scarcity. Too much disclosure or too much provision of information may cause its usefulness to decline for every additional unit as the theory of marginal utility predicts. In other words, information satisfaction may drop progressively with more information provided. This perhaps proves the point that the anticipation that there is always a need for more organisational information is a metamyth (Hargie, Tourish & Wilson 2002:418). Added to this is the idea that perceived information value impacts its utility to the end-user/organisational member and its ability to impact (information) communication satisfaction.

This view from economics may also relate to satisfaction in relation to the strategic value of relational communication, but leaves out the natural, purely human aspect of interpersonal communication based on fellow feeling and need for inclusion. However, it may also show that beyond a certain number of interactions, any additional contact may cause interpersonal communication satisfaction to decline as supported by the wisdom of strategic scarcity. In fact, it may be for this reason that some superiors economise on their closeness with subordinates.

Organisational information overload vis-à-vis actual needs may also be explained by the diminishing marginal utility theory, which postulates that beyond a point more is less. The more organisational publications there are, the more likely the

predictions of the diminishing marginal utility theory are to hold. That perhaps is why often organisations resort to information control as part of their use of strategic ambiguity (Eisenberg 1984: 232).

Beyond this, communication satisfaction from an economic viewpoint may relate to labour mobility. Thus it may be expected that workers who are dissatisfied with their organisational communication may seek exit, in favour of a more inclusive and satisfying communication environment. Not surprisingly, the study by Mohamad (2008:41) shows that communication dissatisfaction is related to intent to leave.

The economic perspective is clearly differentiated from the needs approach, as outlined in section 2.4.3.

2.4.3 Needs approach to communication satisfaction

In the field of psychology one early cognitive approach postulates that satisfaction is a consequence of human needs being met. These may include needs of inclusion, love and self-esteem, which are clearly relational (Tubbs & Moss 1977:68; Cronkhite 1976:86; Myers & Myers 1976: 276). According to the needs approach, communication that leads to these needs being gratified is communication that may be described as satisfying.

Another conceptual angle is the view that satisfaction accrues from a correspondence between expectations and experiences (Thibaut & Kelley 1959: 21). The comparison would typically involve measurement of a satisfaction experience against a set benchmark. As Levy-Garboua and Montmarquette (2007:7) have noted, satisfaction represents a utility gap. Thus when expectations are confirmed, satisfaction is achieved, and when desired outcomes fall short of expectations, dissatisfaction sets in.

Hecht (1978b: 50-51) notes two variant approaches of the expectation fulfilment approach which he calls linear and curvilinear. According to the linear view, satisfaction rises with causative variables. The linear view postulates correspondence between expectation and fulfilment beyond a certain peak, causing a curtailment of satisfaction. This may mean that more information than is necessary will no longer produce satisfaction and may in fact breed a negative emotion. In the same manner, affinitive closeness beyond a certain point may cause a decline of satisfaction from a certain normative level (which may relate to the economics construct of elasticity which predicts that a market that is oversupplied leads to a fall of prices owing to a lower demand).

Hecht (1978a:50) criticises the expectation fulfilment position, indicating that such a position does not take into account expectation fulfilment processes. The expectation fulfilment approach has a logical appeal, but only when it relates to positive expectations. Open communication of negative information may not necessarily produce satisfaction despite the competence, openness, factuality and abundance that may characterise it.

This perhaps explains the phenomenon of distortion in upward communication. When workers selectively send upwards positive information, the implicit rationale is that negative information, even if factual, does not make their superior communicationally satisfied. This implies that the superior may typically have positive expectations despite these being not objective.

And so when positive expectations are met, the internal state of satisfaction emerges. Processes of satisfaction are situated in this manner in a behaviourist theoretical frame where the concept of reinforcement is classically present (Hecht 1978a: 254).

2.4.4 Discriminant fulfilment approach

The discriminant fulfilment approach (which is Skinnerian in the sense that it disregards inner states such as thoughts and affect) is most notably associated with the cardinal issues of stimulus and reinforcement. From this view Hecht (1978a: 57), borrows the idea of stimulus, which is a causal trigger of a response behaviour. The idea of response is tied to either positive or negative reactions. Behaviours, including thinking and feeling, are either punished or reinforced. Applied to communication, aversive stimulus may be linked to argumentative or antagonistic conversational partners and their avoidance may be negative reinforcement or punishment for the negative communicator. Contrariwise, conversation with a politically skilful or good-humoured interactant may lead to that person being rewarded with more desire for communication from the other conversational partner.

To the Skinnerian approach, Hecht (1978a:57-8) adds elements from expectation fulfilment theory to arrive at his own theory of discriminant fulfilment. His new theory states that as a cognitive connection is made between a behaviour leading to yet another behaviour being experienced or displayed, reinforcement-based affect is produced. Thus discriminative stimuli are considered behaviours leading to a particular response which is either positively or negatively reinforced. When a conceptual link is made between a response behaviour and attendant reinforcement, the person learns to produce the behaviour as a consequence of the learned link. Satisfaction then arises out of the learned positive association. If a response to a stimulus is followed by satisfaction that response is likely to be strengthened and become a reinforcer.

Hecht (1978a:47) fundamentally situates his theory within the Skinnerian and the expectation fulfilment approaches and does not make a fundamental departure. His contribution is basically integrative. Based on his application of the idea of reinforcement to communication behaviours, a discriminative stimulus would be

communication behaviour that is more likely to produce particular communication behaviour. This may be illustrated by the example of candidness in a conversational partner leading to openness in self. Satisfaction seems to be synonymous to a degree with standard-based link consolidation - the link between the discriminative and the particular behaviour. Hecht (1978a: 58) writes:

> …the internal behaviour (satisfaction) present when the environment reinforces the discrimination takes on secondary reinforcement prosperities. As a consequence, the process (the linkage or association) by which behaviour is performed based on a discrimination takes on secondary reinforcement properties of its own and may subsequently act as a generalised reinforcer

The link between discriminative stimuli and behaviour has also been exemplified by the communication satisfaction from reciprocated self-disclosure. For Hecht (1978a: 57), the bottom line is that communication satisfaction arises when expected associations are validated in line with one's standards developed from retrospective, experienced and conditioned associations. This line of thinking is essentially different from the principal postulates of the uncertainty reduction theory, as will be discussed in section 2.4.5.

2.4.5 Uncertainty reduction theory

The challenge of uncertainty is inherent in every human experience and more relevantly in human ties which, as Guerrero, Anderson and Afifi (2007: 211) have shown, are essential and "central to being human". These webs of interpersonal and interprofessional relations (which include role relationships in organisations) have huge potential for negative and positive affect as well as cognitive comfort or discomfort.

2.4.5.1 The nature of uncertainty

The nature of uncertainty is such that it has diverse facets with implied impact on the person experiencing it. But basically uncertainty is a condition characterised

by lack of information and/or knowledge caused by a situation's complexity, poor quality of information, a multiple-outcome scenario or information structure (Babrow, Kasch & Ford 1998:13). Uncertainty prevails when conditions are typically ambiguous, complicated, or probabilistic (Brashers 2001: 478). Uncertainty is a subjective experience and thus even in the same situation and with same amount of information different individuals can have differing uncertainty levels. Nevertheless, the same experience of uncertainty can generate personally relevant meanings affecting their intensity and impact. In other words, tolerance of uncertainty can be a function of personality or other contingencies. For example, while organisational seniors may have communication and other resources to sort out an ambiguous situation, new employees may be at greater comparative disadvantage (Kramer 2004:47). Communication skills may be an attribute of seniority and thus fresh hires can have insufficient skills to resolve uncertainty. Socialisation may also be more difficult for organisational newcomers, adding to uncertainty levels (Lester 1987).

Dialectical tension can produce uncertainty and make a comfortable certainty only ephemeral. The consequence of uncertainty is likely to be negative affect and relational damage in the occupational environment. Thus a dearth of needed information is said to be relationally negative in work relationships. Uncertainty is poised to be accompanied by discomfort and strain, attending the lack of clarity or the presence of an ambiguous situation.

2.4.5.2 Types of uncertainty

Uncertainty types include goal, plan, tactical and behavioural (Berger & Gudykunst 1991: 25-27).

Uncertainty manifestations include but are not limited to job-specific information, maintenance (relating to goings-on) and social business including staff relations. Whilst a number of classifications are found, the most relevant description of

uncertainty is one that is intrapersonal and that relates to cognitive processes within the individual worker (Kramer 2004:48). In the context of this framework, the uncertainty that arises from a lack of these categories of information is likely to result in damage to subordinate-superior and subordinate-whole organisation relations (Salem & Williams 1984:79). The burden on communication may increase in proportion to uncertainty levels. It may be argued, for instance, that during organisational restructuring there could be more communication load for organisational leaders as a result of insecure workers trying to make sense of the goings-on.

In particular, organisational life is by no means a haven of secure day-to-day existence. There are mergers, acquisitions, transfers, cutbacks and a host of other organisational realities that can be unsettling to the organisational member. The uncertainties can be alleviated or worsened in proportion to the kind of organisational communication that goes on. The worker wishes to be kept adequately informed about the uncertainties of their organisational existence and to be part of a communicational-relational community. On the other hand, organisations are becoming more political and communication in organisations can reflect the changed character of organisations (Pfeffer 1991: 44). The practitioner-oriented emphasis on clarity of communication is now under scrutiny, reflecting the importance of ambiguity as perceived by managers. Strategies may be employed that are effective but that nonetheless produce no communication satisfaction for the organisational member (Eisenberg 1984:5). The new view of the communicator as a strategist came about following criticism of the overemphasis on clarity of communication as desideratum. The strategic ambiguity problem may not exactly satisfy the organisational member struggling to make sense of uncertain situations.

The generality of the uncertainty reduction theory research indicates that uncertainty is unpleasant and the more uncertainty there is, the more communication dissatisfaction there is likely to be (Neuliep & Grohskopf

2000:68). Conceptually, inadequacy of information needed for action or prediction can be generally troubling, even though interpersonal tolerance of uncertainty can differ markedly. As studies in relational development seem to show, uncertainty can produce heightened stress levels for those relationally involved. Their anxieties can then frustrate their relational continuity (Neuliep & Grohskopf 2000:68). Relational uncertainty with significant organisational leaders or supervisors can similarly mean elevated strain for the subordinate concerned. Apparently, relational quality can impact communication quality and therefore affect communication satisfaction in addition to relational happiness.

Knowledge can enhance relational certainty and comfort, and can therefore be claimed to have a satisfying and pacifying effect as a result of relative certitude. This enables painless prediction of a course of a relationship for interactants (Berger 1986: 35).

There are at least eight axioms of relevance in uncertainty reduction theory with relevance to communication in interpersonal or organisational contexts.
According to Berger and Calabrese (1975: 103-107), the following axioms are some of the constitutive ingredients of uncertainty reduction theory

- Axiom 3: High levels of uncertainty cause increases in information-seeking behaviour. As uncertainty declines, information-seeking behaviour decreases.
- Axiom 4: High levels of uncertainty in a relationship cause decreases in the intimacy level of communication content. Low levels of uncertainty produce high levels of intimacy.
- Axiom 5: High levels of uncertainty produce high rates of reciprocity. Low levels of uncertainty produce low levels of reciprocity.
- Axiom 6: Similarities between persons reduce uncertainty, while dissimilarities produce increases in uncertainty.
- Axiom 7: Increases in uncertainty level produce decreases in liking; decreases in uncertainty produce increases in liking.

- Axiom 8: Shared communication networks reduce uncertainty, while lack of shared networks increases uncertainty.

From these axioms and the remaining others, a number of theorems have been proposed (Berger & Calabrese 1975: 101-102) that explain relational communication and its developmental characteristics.

While the uncertainty reduction theory has been provocative since its formulation, there nonetheless have been critics of its theoretical limits. Criticisms include the failure of the theory to account singularly for all relational desires. Uncertainty is subjective and reactions to it are numerous which include tolerance to it. Indeed, not every uncertainty leads to interpersonal communication (Kramer 2004:70). While the theory claims that uncertainty is the main force motivating interactional desire, strategic needs have been shown to be a far more important force as well as a more common motivational source (Sunnafrank 1986:165). Accordingly, communication desire is determined by the calculation of the relational parties about the sustainability of their ties. This is akin to an investment model which postulates that there should be a calculation of affective benefits out of a relationship development. People invest in relationships that they predict will lead to positive affective outcomes.

Owing to complexities, the uncertainty reduction theory has been unfalsifiable and empirical findings employing the theory have come up with mixed, inconsistent findings (Kellermann & Reynolds 1990: 6-7). As section 2.4.6 will show, equity theory does not fare better when it comes to theoretical falfisifiability despite its considerable appeal in explaining dyadic relational satisfaction.

2.4.6 Equity theory

Among several orientations applicable to conceptualisations of communication satisfaction is equity theory. Equity theory is a fairness theory which postulates

that people in general seek balance between their contributions and those of other persons involved in a relationship (Wilkens & Tim 1978:203). Relational satisfaction, accordingly, is contingent upon interactants' perceptual evaluation of their inputs vis-à-vis outcomes. Imbalance or inequity is likely to breed communication or relational dissatisfaction. We may speak in terms of some imbalance between quantities of sending and receiving in bilateral communication, or the receptive experience versus the active encoding role.

Inputs related to communication relations can be communication initiatives, communication attention directed at colleagues versus received or sent textual communication versus received or outgoing versus incoming calls as may be digitally recorded on mobiles. But as the leader member exchange theory posits (Mueller & Lee 2002: 220), organisational resources are not fairly distributed and a few organisational members may receive far more attention, which may be resented by workers who may feel unappreciated or unduly distanced. In fact Wilkens and Tim (1978:116) assert that in inequitable relationships the 'victims' are likely to experience distress of some degree and respond in different ways when an organisational leader is perceived as impersonal and remote, while congenial and accessible to a different circle. Aggarwal-Gupta and Kumar (2010:57-58) have shown that communication satisfaction is impacted by perceptions of procedural, distributive and interactional justice.

It should be noted that the theory does not claim that absolute equality of inputs and outcomes in relational communication between superiors and subordinates is desirable, or possible. In real life, not every subordinate can expect symmetrical communication, nor perhaps do they need it. In fact, the theory maintains that the interpersonal view of equity may vary and individuals may have differing perceptive frames with regard to relational equity (Guerrero et al. 2007:211). Communication analysis would show, for instance, that isolates may not value interaction with superiors (Avtgis 2000:83) because of dipositional factors or self-esteem issues.

But in more typical cases, when workers perceive that while their input is equal to that of their colleagues but they receive less in terms of outputs, they will use social comparison (Carrel & Dittrich 1978:203) to evaluate the communication environment. They are likely to experience distress and dissatisfaction which may have consequences for the organisation. Research has documented several outcomes of communication dissatisfaction: productivity decline, absenteeism, turnover and other undesirable outcomes (Gray & Laidlaw 2004:426; Clampitt & Girard 1993:350). Less documented are studies on communication satisfaction guided by the yield shift theory, as presented under 2. 4. 7.

2.4.7 The yield shift theory

Of the varied conceptual approaches to understanding satisfaction, the yield shift theory of satisfaction is one of the most recent. The foundational element of this conceptualisation is emotion defined as “a valence affective arousal with respect to some object that has reference to some state or outcome desired by an individual” (Briggs, Reinig & De Vreede 2008:270). The problem with this approach is that the unidimensional character of the construct which applied to communication evaluation fails to reflect the multidimensional nature of satisfaction in communication. The conceptual definition does not treat satisfaction and dissatisfaction as polar ends on a continuum with a neutral middle. The continuum is a stretch from a state of nonarousal to one of arousal, the argument being that a valence transformation experience from negative to positive or otherwise, precluding a neutral state, is a common possibility.

The yield shift theory (Briggs et al. 2008:270) is based on five assumptions and two propositions. The assumptions subsume cognition and perception at different levels and centrally involve yield for a given goal. The theory concedes that there is an upper limit to any arousal experience, and an increase in magnitude of yield of shift would increasingly become smaller arousals in the affective domain. In other words, there is an affective climax, a drop and a dénouement.

The theory parsimoniously explains several logical effects in the area of information science which may also relate to the area of information supply and demand and the affect attained.

- *Goal attainment effect.* Persons derive satisfaction when their goal is met and they experience dissatisfaction when their goal is frustrated.
- *Confirmation effect*. Persons are satisfied when attainments parallel expectations or wants and have dissatisfaction when their expectations or desires are not met.
- *Disconfirmation effect*. Persons are affectively neutral when there is a matching between expectations or wants. They are satisfied when their expectations or wants are superseded by their met goals. Inversely, they are dissatisfied when expectations or desires are greater than the outcomes.
- *Anticipation effect.* Persons may experience satisfaction/dissatisfaction when pondering future realisation of a goal.
- *Differential effect.* Diverse individuals demonstrate differing levels of satisfaction when they attain goals to which they have similarly attached utility values.
- *Attenuation effect.* As time progresses, satisfaction experiences tend to fade (Briggs et al. 2008:285), which roughly agrees with the "temporal nature" of satisfactionism (Dorsey 20121).

As Krone (2005:100) maintains, the affective chemistry of organisational existence is hugely intricate and hence it should be a source of no surprise that the biggest concern of organisational communication has been the affective component of communication. Satisfaction is, in diverse realms, a fundamental aspiration in organisational life and perhaps a demonstration of the quality of a worker's life. However, the construct is not fully understood and operationalised, and fuzziness has characterised the concept as applied to different contexts of

human endeavour and professional life. There is not much that the yield shift theory does in terms of explication in the desired detail.

Certainly, affective constructs tend to be tenuous, and definitional precision of such constructs is often unattainable. One major problem is the mix of emotion and cognition involved in satisfaction as a construct. The determination of the constitutive role pertaining to the affective and cognitive elements is thorny, although there have been attempts to operationalise both elements. The proportion of the mix is often difficult to demonstrate. The yield shift theory has yet to mature with more empirical testing and evidence to be of considerable importance in studies of organisational communication satisfaction.

2.5 SUMMARY

A multidisciplinary approach can lead to novel ways of framing, understanding and addressing pivotal issues of organisational communication satisfaction issues. The burgeoning of the field of communication in general and communication satisfaction domain in particular can indeed be tremendously assisted by looking at the diverse scholarly fields and elucidating how they can inform, enrich, and sustain the important construct of communication satisfaction and how it can better be operationalised. Conceptual direction obtained from the fields of philosophy, economics, psychology, and the broad area of organisational studies can indeed cumulatively help the flourishing of a relevant conceptual wealth to help fuel further theoretical developments. The complexity, multidimensionality, and dynamism of organisational communication can only be appreciated if a multidisciplinary conceptual approach is adopted. Such an integrative conceptual framework aids, without privileging any particular strand, transcendence and novelty that advances the understanding of communication satisfaction in the organisational environment with its assortment of complex and intertwined issues. This chapter shows a number of perspectives on

communication satisfaction obtained from the diverse social science fields as mentioned earlier.

To begin with communication satisfaction can be looked at from the fresh philosophical perspective of desire satisfactionism, a theory which states that a comparison of pain and pleasure experiences and a reckoning of the balance is what ultimately determine satisfaction. This balance may be related to the pleasures obtained from both information and relationship communication and the lack of satisfaction arising from frustrating relationships or from experienced information deprivation.

The field of economics can also enrich our understanding of organisational communication satisfaction. An economic perspective would regard feeling as utility which can be quantified to arrive at a particular level of satisfaction. Thus communication satisfaction can be conceptually related to economic issues of want and desire and how and whether they are met to establish a wellbeing report as studies of consumer satisfaction with regard to organizational media would show.

In its own right, the needs theory from general psychology can also assist an understanding of the nature of communication satisfaction as it provides a framework to situate and analyse the construct by providing a conceptual window. Thus the theory would predict that communication satisfaction is a function of the informational and relational needs of a particular organisational member which would be decided by measuring the distance between needs stated and to what degree these needs have been met.

Another interesting theory is equity theory which offers a fairness perspective. The basic tenet of the theory is that satisfaction is an outcome of the balance between inputs and returns. Thus the theory would predict that a worker's

communication satisfaction would hinge on the fairness perceptions of the individual in matters of information interchange and relationship investment.

Somewhat more complex than equity theory is the discriminant fulfilment approach which has been advanced to explain communication satisfaction in particular. The theory, which is fundamentally based on behaviourist notions of stimulus and reinforcement, states that communication satisfaction is affected by communication experiences and the individual's evaluation of these experiences which decide whether person engages in further communication or avoids it as aversive.

A more general theory, the uncertainty reduction theory, has been a popular conceptual tool but is considered reductionist. It states that satisfaction occurs in proportion to the number and intensity of uncertainties experienced by a particular person. Thus the theory would posit that more information would produce more satisfaction although this is not always the case and in fact it is possible that more information may lead to more stress and its associated consequences. However aspects of this theory may be interesting but the theory nevertheless is generally indefensible on numerous accounts.

A final theory discussed in this chapter is the yield shift theory. The theory's core element is emotion presented in degrees as climax, drop and dénouement in relation to a particular individual's outcome desire. The yield shift theory, presented in five assumptions and two propositions, privileges emotion over cognition, although the chemistry of satisfaction is not clear. A further problem is that the theory appears heavily biased in favour of communication as information interchange. Nevertheless, despite the indicated shortcomings, it helps to elucidate, although as uni-dimensional, the construct of communication satisfaction.

In general theoretical work on satisfaction has included cognitive-based validation models, fairness models/exchange theory, Skinnerian reinforcement theory and the exchange model, which basically is linked to fairness/exchange paradigms. The differing theories have assumptive grounds that are either distinct or to a degree similar to pre-existing theories or those that are contemporaneous. All explain satisfaction as affect from diverse perspectives, often with incompatible conceptual lines, casualty and conclusions. No single theory adequately explains all communication satisfaction processes and outcomes.

In the next chapter more recent conceptualisations of communication satisfaction as a multidimensional construct and its relationship with allied concepts and attendant measurement issues are considered.

In the next chapter more recent conceptualisations of communication satisfaction as a multidimensional construct and its relationship with allied concepts and attendant measurement issues are considered.

CHAPTER 3: CONSTRUCTS OF COMMUNICATION SATISFACTION

3.1 INTRODUCTION

In earlier chapters, communication satisfaction was shown to be a multidimensional construct. However, the determination of the number and type of the constructs that underlie the multidimensional concept has been less than complete and often conflicting dimensional structures have been reported. The dimensions as identified by contemporary researchers are far from satisfying in the sense that they are often contingency-based, with organisational contexts leading to differences in the structures of constructs of organisational communication satisfaction. The problem, as Heylighen (2012:2) and Law, Wong and Mobley (1998:741) note, is that if observations are situation specific, the absence of regularity is a challenge to the scientific enterprise. Luckily, this challenge is also an opportunity. In addition, there are also other construct structures that are tested and found to be applicable to cross-cultural organisational settings indicating the presence of universals.

The plan of this chapter essentially includes reviews of a number of communication satisfaction dimensions considered to be core in the conceptualisation and measurement of organisational communication satisfaction. These are related to directional communication involving vertical (both downward and upward communication) and horizontal communication, job satisfaction, relational trust, communication climate and feedback, based on which the proposed hybrid scale of communication satisfaction is developed. Although the constructs outlined chiefly constitute the construct literature as presented in this chapter, auxiliary factors directly related to these constructs are treated as appropriate for a full grasp of the conceptualisation of communication satisfaction in the Ethiopian context. A brief overview of the constructs would help to have a window on the rest of the chapter.

3.2 OVERVIEW OF COMMUNICATION SATISFACTION CONSTRUCTS

Communication satisfaction is both a cognitive and affective dimension with numerous facets that have not yet been exhausted. Instead, these facets continue to fascinate communication researchers as well as organisational psychologists, particularly since Downs and Hazen (1977) empirically confirmed the construct's multidimensional character. The different constructs of communication satisfaction identified in the literature reflect differences in the conceptualisation of communication satisfaction, as well as the focus that is placed on particular dimensions of communication. The differing conceptualisations may also include the importance placed on particular latent variables as opposed to others, as well as disparity in the cognitive-affective mix of the construct. Discussion of the mix may be at an embryonic stage, but there is substantial agreement on other lines of conceiving constructs of organisational communication satisfaction. One such line may be direction of communication, as presented in subsection 3.2.1 below.

3.2.1 Direction-based constructs of communication satisfaction

The organisational communication literature has identified several lines of organisational communication. These are fundamentally downward, upward and horizontal communication, although other taxonomies are possible (Davis 1981: 418-430; Daniels & Spiker 1983; 94-102; Pace & Faules 1994: 126). The directions of communications can be studied in relation to satisfaction.

The differences in the directions of communication are accompanied by other attributes relating to numerous factors, including functions, channels and challenges (Koehler, Anatol & Applebaum 1981: 80). The special nature of each direction of communication as well as the dynamics of the actors involved in directional communication have implications for communication satisfaction for those involved in the communication process who represent power, professional

or collegial relations, or simply personal relations. From the perspective of information flow studies (Greenbaum et al. 1998: 296), it appears that what comes to mind first and foremost is downward communication along the lines of organisational communication structure, as delineated in subsection 3.2.1.1.

3.2.1.1 Downward communication

This line of communication, which bears the marks of classical theories of organisation, involves those in the upper channels of organisation communicating to subordinates. Downward flow suggests the presence of a hierarchically located upper body, i.e. management communicating variously with subordinates of the kind described in classical bureaucracy and in tune with the process-related perspective of organisation (Geraldi 2007:2). The origin of the communication in the organisation is the upwardly located superior or executive entrusted with control of process (Hatch 1997:22). This line of communication is about communication with the powerful who can "to some degree grant or deny, facilitate or hinder, the other's gratification" (Emerson 1962:32). Such downward communication is consistent with the idea of communication structure when organisational communication is viewed functionally (Daniels & Spiker 1983: 93; Goldhaber 1993: 50) in terms of lines of communication.

Katz and Kahn (1978:440) mention numerous reasons for downward communication.

a) The need for job-related instruction from superiors to subordinates

The means for such instruction include direct instruction, job descriptions, working procedure, manuals, audiovisuals and many others (Koehler et al. 1981: 81).

The complexity of the job determines the density of the communication, i.e. the length and details of the content of the instruction given to a subordinate. Thus, simple tasks may require short and simple instructions while demanding tasks may require elaborate instruction. However, the experience and level of the worker may play a moderating role in the length as well as amount of detail of the instruction.

Since many tasks are repetitive, experienced workers may not require too much detailed instruction even if the task may be challenging. Experienced subordinates may also have developed prediction capacities and may therefore have shortcuts to fulfil orders given (Davis 1981: 424) and have lesser communication dissatisfaction.

The particular direction of communication may also have a role in relation to an individual's affective and cognitive chemistry in relation to satisfaction with communication. The personality of the superior may thus impinge on the length and detail of instructions. Thus subordinates with a high tolerance for ambiguity may be more adept in handling instructions, while a worker with a low tolerance for ambiguity may require meticulous instruction and may in fact engage in extra upward communication, seeking clarifications of instructions given (Kajs 2009:5).

Low tolerance for ambiguity may be an affective liability given the uncertainties of organisational processes and thus a worker who is uncertainty intolerant is not likely to derive satisfaction from communication that is ambiguous. But ambiguity can be a strategic option in a particular direction of communication and a reality in organisational life, producing comfort for those who use it, although subordinates may not necessarily value it. Functionally oriented scholars may put a premium on clarity in directional superior-subordinate communication as most desirable, but the reality of organisational communication is that ambiguity may be necessary from a relational angle (Pacanowsky & O'Donnell-Trujillo 1983:150) and managerial strategic interest, although it is not the recipe for

enhancing communication satisfaction for the subordinate. As Pascale and Athos (1981:102) note:

> explicit communication is a cultural assumption; it is not a linguistic imperative. Skilled executives develop the ability to vary their language along the spectrum from explicitness to indirection depending upon their reading of the other person and the situation.

It may further be said that channel selection may be a function of superiors' reading of a context, including the subordinate-superior interaction climate. However, the channel selection may affect the effectiveness and reception of instruction from superiors, irrespective of managerial philosophy and style, or other contingencies. A manager who does not seek to be ambiguous may give face-to face instructions which may be claimed to be more satisfying, resulting in fewer uncertainties and doubts about job orders as well as relational fears.

In addition to the positive attributes of clarity viewed from a functional and humanistic perspective, the ability of communication from superiors to satisfy subordinates is contingent on the following (Davis 1954:426):

- Acceptance of the superior's legitimacy
- Subordinate's perception of the superior's competence in the subject communicated
- Trust in the superior sending communications
- Acceptance of the assignments and their goals as communicated
- Power of the superior to assure implementation of tasks assigned to subordinates

b) Provision of directions

The job instruction issues as outlined above can further be viewed from an information perspective. The provision of direction can relate to levels of organisational communication satisfaction reported by subordinates. However,

the provision of instructions from organisational leaders is characterised by subtlety and tends to be a less stressed subject (Hall 1991: 170). Different organisations, including the civil service, may have varied philosophies with regard to their communication relationship with their workers on important aspects of organisational life.

For instance, in some organisations workers' access to all organisational information may be perceived as a liability and a threat. While an informed worker may be considered an asset, there is no agreement how much that worker should know or how much organisational information they should have. In fact, open access to all information about organisational activities may erode the power represented by the management. The perception that familiarity breeds contempt may indeed prevent the management from providing the fullest degree of information possible. The nature of organisations as political entities and organisational life as political exercise may appear to be a good enough reason to have a no go area of an organisationally confidential information database (Pace & Faules 1994: 130). The sensitivity associated with organisational information may dissuade management from full disclosure of information. Access to information may be restricted to those in the higher echelons of the bureaucracy. However, it is also possible that underinformed workers may resent the information restrictions placed on them and be anxious and dissatisfied by the perceived inadequacy of information supplied to them. Hence it may be claimed that there is a level of information dissatisfaction affecting many organisational members, especially those in the lower levels because there may be inadequate information support (Miller 2003:240).

c) Ideology

Wines and Hamilton (2009: 439) define ideology as "a generally coherent set of values, beliefs, and hopes (sometimes fears) about how the world does and

should work. Sometimes, embracing a certain ideology may be a requirement for belonging to a group".

Thus, organisational ideologies communicate the culture, values and beliefs of the workplace.

In relation to superior-subordinate communication, ideology can convey the message to subordinate staff that hierarchy is "normal, acceptable and unproblematic" (Deetz & Kersten 1983:162), possibly preventing relational difficulties as well as dissatisfaction.

As downward communication relates to relational communication, ideology communication may be intended to indoctrinate workers about the organisation's vision, mission, objectives, values and philosophy. This may also be likened to the civil service indoctrinating subordinates about its policies, ideology and expectations to generate civic support in a sustained manner. Such indoctrination may help the organisation to produce, in a sense, organisational citizens with a sense of belonging, who represent the institution in communication or relationally with external publics. Therefore it can be said that the communication of ideology can advance the relational aspects of communication satisfaction.

d) Organisational perspective

Information about organisational ways and means, rules and regulations, as well as culture may be taken as another function of downward communication. The staff book and legislation may be considered impersonal downward communication.

e) Feedback

The final element in downward communication relates to supervisory feedback provided to subordinates. This feedback communication is critical in the sense that it is important for subordinates to know how they are performing vis-à-vis standard performance expectations. It also helps the superior to correct deviant worker character or to show performance gaps observed so the worker has the right information to achieve expected levels of performance (this subject of feedback is discussed at length in a separate subsection under 3.7).

3.2.1.2 Downward communication channels

According to Neher (1997: 161-2) and Koehler et al. (1981: 72), a variety of print, face-to-face, group and organisational channels are used in downward communication with differing potential for generating communication satisfaction.

However, a great deal of downward communication, especially in sub-Saharan African organisations like Ethiopia's, tends to be print-based given the level of development of these organisations (Jones & Blunt 1993:1735). It is also formal (Onwumechili 1996:239) and "sender-oriented" (Ndi-Zambo 2012:32), which may be mentioned as a potentially major reason for subordinate dissatisfaction with downward communication. In the much-studied American organisational environment, a mega research study involving 32 000 workers indicated that subordinates prefer face-to-face communication with all supervisory bodies hierarchically placed at all levels (Neher 1997: 162). This is also supported by a number of studies showing that face-to-face communication is the most effective and most satisfying channel of communication as reported, for instance, by Antonis (2005: 211) in her South African study. The Nigerian case (Onwumechili 1996:239) indicates that the colonial communication legacies in African organisations are unsuitable to African communication cultures, which are basically oral and natural. Theoretical support for the Nigerian study comes from the media naturalness or psychobiological model (Kock 2004:331), which

postulates that face-to-face communication enables the highest possible degree of communicative naturalness involving:

- collocation of interactants
- synchronicity
- facial expressions
- body language
- speech.

The new theory also addresses the cardinal attributes of media naturalness which include enhanced physiological arousal, reduced cognitive effort and communication ambiguity (Kock 2005:121-124). Communication ambiguity is particularly relevant to East African organisations in view of the high uncertainty avoidance that characterises East African cultures (Hofstede 1991:113). This may also be reflected in the organisations (Wasbeek 2004:177).

3.2.1.3 Channel selection in downward communication

Level and Galle (1988:32) have put forward the following criteria for selecting media for downward communication, which should have positive implications for communication satisfaction. While availability, cost, impact, relevance, response and skills are factors in media selection, media richness considerations are also important (Neher 1997: 174) because the richer the media, the more satisfying the communication is likely to be.

As related to organisational communication satisfaction and as used in downward communication, media richness refers to the capacity of a particular medium to provide the fullest information possible and hence the highest gratification level possible (Daft & Lengel 1986: 560-61). It should be noted that the richness of media is also able to affect relational outcomes as a product of the degrees of informational satisfaction obtained by a particular subordinate. Rich media may be of particular import in relationship-focused collectivist work environments where the affiliation factor may be more important than the

informational dimension. Rich media and face-to-face encounters in particular may be a more natural communication avenue for such collectivist environments, especially in Africa. According to Downs, Linkugel and Berg (1977: 27-28), employees in general prefer rich media which tend to produce more communication satisfaction because they are more natural.

Despite the preponderance of texts on excellence in managerial communication, the generality of research on downward communication suggests that it is often dissatisfying to subordinates (Seta, Paulus & Baron 2000: 149; Crampton, Hodge & Mishra 1998: 571). Such unhappy communication needs transformation along the lines of the emerging idea of leadership as conversation (Groysberg & Slind 2012:2) using knowledge of the diversity, strengths as well as weaknesses of different media of organisational communication (Level & Galle 1988:32).

Directionally, downward communication implies the presence side by side of the upward communication dimension. The latter has, in its own right, the potential to predict subordinate communication satisfaction given the potential of managerial attributes and their affective consequences for subordinates (Wheeless, Wheeless & Howard 1984:222), as demonstrated in section 3.2.1.4 below.

3.2.1.4 Challenges of downward communication

Andrews and Herschel (1998: 110) show that the following are some of the frequently observed downward communication challenges:

- Superiors' overestimation of their communication downwards
- Superiors' generous self-ratings of their communication effectiveness with subordinates
- Belief that downward communication virtually always leads to subordinate comprehension and agreement

Another major cause of low satisfaction may be information loss or distortion, which can happen as information changes hands in the hierarchy. The following

table shows typical information loss at the different levels of the bureaucratic hierarchy:

Table 3.1: Information loss in typical downward communication

Level of bureaucracy	Percent of information received
Board	100
Vice-president	63
General supervisors	56
Plant managers	40
General foreman	30
Workers	20

(Nicholas 1962: 4)

As table 3.1 shows, there is a considerable information loss as one moves from the topmost position where 100% information is received to the level of the subordinate where a staggering mere 20% of the original communication is received. The significant information loss is likely to produce compromised communication and an affective condition of dissatisfaction ascribable to missing information which may have strategic relevance for the affected worker.

3.2.1.5 Supportive downward communication

Nobile (2008:1) defines supportive communication as communication "by which people in organisations fulfil and cater for needs for affirmation, encouragement, social interaction and assistance". In particular, supportive communication by superiors, in line with the human relations movement, is crucial. The dignity afforded a worker through humanised communication may have practical utilitarian benefits. Conversely, dissatisfied workers may not be significant assets engaged in constructive tasks. Instead, they may have reduced self-worth which may lead them to assume negative roles due to their unhappy affective state.

Although communication satisfaction of subordinates may at times have no significant practical benefits such as increase in productivity (Thirty cited in Pincus 1986:400) (and this varies by research), the modern workplace needs to treat the subordinate with dignity and respect. The reason is that workers have emotional needs and like to be valued (Miller 2003:29) and treated as valuable, a point underlined in Maslow's early work (1954).

The communication that ensures such dignity and respect is likely to lead to subordinate satisfaction with work and organisation (Andrews & Herschel 1998: 106). Consistent with Freire (1986) and the humanist movement, Andrews and Herschel (1998: 108) propose dialogic downward communication whose traits include positive attitude and behaviour categories. More explicitly, dialogic supervisor-subordinate communication is characterised by reciprocated sincerity, honesty, directness, openness and respect. Many of these qualities are considered effectiveness criteria in the evaluation of downward communication performance of supervisors (Jablin 1979: 1220).

3.2.2 Upward communication

Like downward communication satisfaction as outlined above, upward communication satisfaction may also be studied in relation to the flow of a variety of messages from subordinates to superiors - called upward communication. Viewed as a communication dimension, upward communication is communication sent to subordinates by superiors in a manner the hierarchy requires or prescribes. Depending on the particular organisation studied, upward communication has varied functions. Katz and Kahn (1978: 446) state that upward communication may be about subordinates themselves, their performance and their problems, about others and their problems, about organisational policies and practices, about what needs to be done and how it can be done.

Upward communication may also prove useful to improve downward communication or its reception as exchange theory or the reciprocity norm would suggest (Rhoades & Eisenberger 2002:698).

It would also open social resources as explained by the theory of social capital (Monge & Contractor 1998:2). Indeed, subordinates may value communication upwards as an opportunity. Speaking to more important people may have strategic and affective advantages. In addition to seeking closer psychological ties with decision makers, subordinates may have an added goal of winning favours and securing promotions and praise. Thus, control, inclusion and affection may be the prime motives for communicating upwardly (Hulman, Goodnight & Mougeotte 2012:2).

The generality of relevant research suggests that upward communication is used to inform superiors about current activities, achievements, progress and future plans. It is also used to give a picture of job-related difficulties which call for the superior's intervention, such as suggesting ideas for organisational and job-related improvements. Upward communication may also be employed to present an idea of the affective state of workers with regard to their jobs, workmates and the employer (Pace & Faules 1994: 130). Conrad (1990: 126) mentions three crucial types of information that need to be communicated upwards in a manner characterised by accuracy, timeliness, completeness and conciseness:

- Special expert information that gives superiors an idea about professional ways of handling specific business requiring expertise of subordinates which superiors may use in task design
- Feedback about the degree to which supervisory instructions have been implemented
- Warnings about job-related challenges as faced by workers which might affect other workers or unity of the organisation

3.2.2.1 Barriers to smooth communication flow upwards

Conrad (1990:127) points out that two factors, i.e. structural distortion and trained communication incapacity, stand in the way of accurate and timely information communication and affect the communication satisfaction of the parties involved in interaction.

As outlined by Conrad (1990:128), structural distortion, which relates to information loss at each stage, comes in the following forms:

- Condensed - messages communicated are reduced, simplified and less elaborate than messages received.
- Accented - simplification of messages leads to extreme forms such as positive or negative, either/or types of extremes.
- Assimilated – transformation of the message leads to receipt of similar messages as in possession of the person receiving the communication.
- Whitewashed – messages are altered to fit in with the receiver's point of view.
- Reductively coded – a complex or ambiguous message is made to lose its complexity and simply added to existing messages to produce a designed coherent whole.

The above pitfalls may have implications for quality and level of informational and to a lesser degree relational satisfaction.

3.2.2.2 Trained communication incapacity

Another variable related to communication satisfaction is what is called trained communication incompetence which can surface in upward communication. The concept of trained communication incapability represents the communication problems that arise as organisational members representing different professions communicate using their respective technical jargons (Daly 2004:1). It is not difficult to see how the narrow specialisation and attendant exclusive linguistic

codes as well as interprofessional attitudes may make communication across professions difficult and dissatisfying. This can manifest itself in communication between members of a professionally diverse workteam whose leader does not necessarily understand the codes represented by the different specialists. It may be claimed that under such a linguistic environment communication is poised to suffer and satisfaction to be less than ideal.

Apart from interprofessional barriers, Koehler and Huber (1974: 32) state that there are factors which impact on the success of upward communication and its ability to generate satisfaction. Among these clearly is management philosophy. Thus, human resource managers are likely to allow receptive communication (with implied strategic distortion) because they know they need it to succeed managerially. But there may also be distortion in the management hierarchy (Krivonos 1982:349). In particular, middle management tends to suppress negative news from subordinates and pass on more positive news upwards in similar degrees to the human resource manager (Larson & King 1996:49).

There is therefore a level of filtering in a great deal of communication but mostly in upward communication. This is explained by subordinates' desire for upward mobility or lack of trust in the supervisor or fear of reprisal (McClelland 1988:125). From a critical perspective, organisational communication distortions are due to power relations and hierarchical structure and how communication is used to reflect power (Rizzo & Brosnan 1990:70). Communication pathologies or dysfunctions are reflections of power asymmetry (Felts 1992:3).

But current undistorted information is likely to be linked to communication satisfaction for actors involved in receptive and productive upward communication. As is apparent, information is perishable and so understandably its utility is time-sensitive. Current information is vital for correct decisions and old information can only lead to wrong assessment. So timeliness of information may be taken as a construct in its own right or a sub-construct of satisfaction with upward communication.

Certainly, managers have criteria with which they prioritise information (Babu, Singh & Sachdeva 2012:4). Thus upward communication is more likely to be sought if it is in conformity with current policy. Contradictory communication is likely to be ignored since it may confuse and disturb the status quo. There may often be a management need to be comfortable with one's chosen ways and ignore disconfirming versions or options. These may be called managerial blind spots (McCormick 2012:3). Understanding such requirements and subtleties may not be easy for the subordinate involved in upward communication.

In addition to this is the phenomenon of skilled incompetence as a Machiavellian communication strategy often employed by managers which can confuse subordinates and frustrate their upward communication. Skilled incompetence, according to Argyris (1993:1), refers to managerial language behaviour that is managerially self-serving but confusing to subordinates because it is strategically designed to be insufficiently clear to be of any use except for the manager. The abovementioned management-based communication problems, as well as those addressed by Conrad (1990: 131), are responsible for the low upward communication satisfaction reported by employees (Gibson & Hodgetts 1991:268) and the failure of communication improvement initiatives (Larkin & Larkin 1994).

3.2.2.3 Upward communication policy

Organisational communication policy pertains to rules governing organisational communication behaviour (Gilsdorf 1998: 173) which may be implicitly or explicitly stated. The presence of a policy in relation to upward communication presents potential for satisfaction in varying degrees. A communication policy is important to make upward communication more effective and possibly satisfying through the introduction and execution of an appropriate and clear strategy for all actors involved.

Organisational communication rules as outlined in a communication policy (Davis 1981: 428) give clear indications and directions about important aspects of the vertical communication practice and expectations of interactants in the organisational hierarchy. In a typical human resource organisation, elements of a communication policy encourage upward communication to enhance organisational development and employee satisfaction ensuing from democratic communication and communication fulfilment as experienced by subordinates (Miller 2003).

According to Davis (1981: 421-431) and Daniels, Spiker and Papa (1997: 98), organisations may employ numerous communication strategies as well as a wide network of channels that can produce satisfaction in upward communication, as may be indicated in organisational manuals.

3.2.2.4 Upward communication channels

Koehler et al. (1981: 94) explain that media commonly used for upward communication by subordinates are either oral or written, and this is probably more typical of the African civil service. The idea of channel often prominently relates to information interchange.

But issues of satisfaction of subordinates with upward communication may well be better served by the argument that “the key to success in employee relations ….will involve building relationships much more than it will involve disseminating information” (Wright 1995:192). This is also supported by the theory of relationship management which involves relational symmetry (Ledingham 2003: 190). Upward communication and whether it is indeed encouraged give clues about the commitment of management to any such dialogical/relational communication as the recipe for shared satisfaction. However, it must also be realised that there are subordinate attributes that can be dysfunctional which even the manager with the best of intentions may not be able to fully control. A

case in point is employees with particularly high oral communication comprehension who will find it difficult to communicate successfully irrespective of the manager's traits (Falcione, McCroskey & Daly 1977:373). It can therefore be said that there are challenges presented by upward communication.

3.2.2.5 Upward communication challenges

The following points as outlined by Koehler et al. (1981: 97-98), Davis (1981: 427), Andrews and Herschel (1998: 146) and Hall (1991: 172-73) are potential hindrances in the effort to create a communication-rich organisational environment and hence can impact on upward communication satisfaction:

- Subordinates' low motivation for upward communication
- Superiors' failure to motivate subordinates to engage in active upward communication
- Subordinates' distortion of upward communication of messages
- Short-circuiting by subordinates
- Slow pace of response to upward communication
- Inhibitory effects of positional differences or power relationships

3.3 HORIZONTAL COMMUNICATION

Horizontal communication is a non-positional relationship among peers in a particular work unit of an organisation (Pace & Faules 1994: 133) involving principally a coordination function and able to generate satisfaction (Lunenburg 2010:6). Essentially a considerable amount of horizontal communication may have either functional or relational relevance or both. All the same, horizontal communication involves the greatest amount of communication in the organisation because there are more subordinates than superiors and it appears that communication among equals is easier and more comfortable (Richmond & McCroskey 2009:30). Also, workers prefer horizontal communication because at times rigid bureaucratic communication would be too lengthy to be of use and

this shortfall would be atoned for by horizontal exchanges of messages when conditions so favour or require. The communication shortcut in a highly rigidly structured organisational setting is shown below.

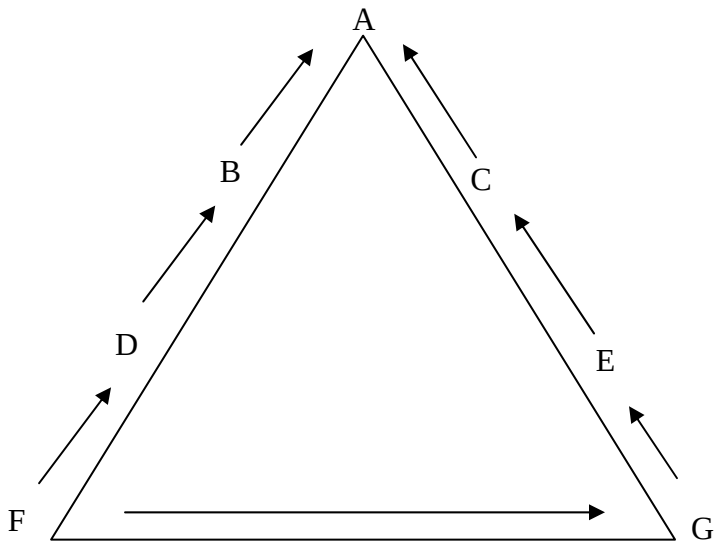


Figure 3.1: Horizontal dyadic communication between F and G (Daniels et al. 1997: 99)

Obviously horizontal communication does make communication burdens lighter by offering shortcuts. Through horizontal interchange and interaction, information may be shared among work groups in addition to work being more easily managed through collaborative engagements. Apart from addressing the human need for workplace socialisation, it makes participation decision making a possibility which provides a form of control and choice for the worker (Heler, Pusic, Strauss & Wilpert 1998:42).

Encouraging horizontal communication may be promoting workplace democracy and power sharing. This is possible because the need for upward communication is reduced and empowerment through participation of workers in lower echelons is encouraged.

However, horizontal communication requires workers' extra effort and recognition of the relevance of this direction of communication. Workers also need to have more confidence that they do not have to resort to upward communication to solve every bit of work challenge. They need to have confidence that the worker next door can help out and prevent the need for communication upward with a superior whose response may not come that promptly, as studies seem to suggest.

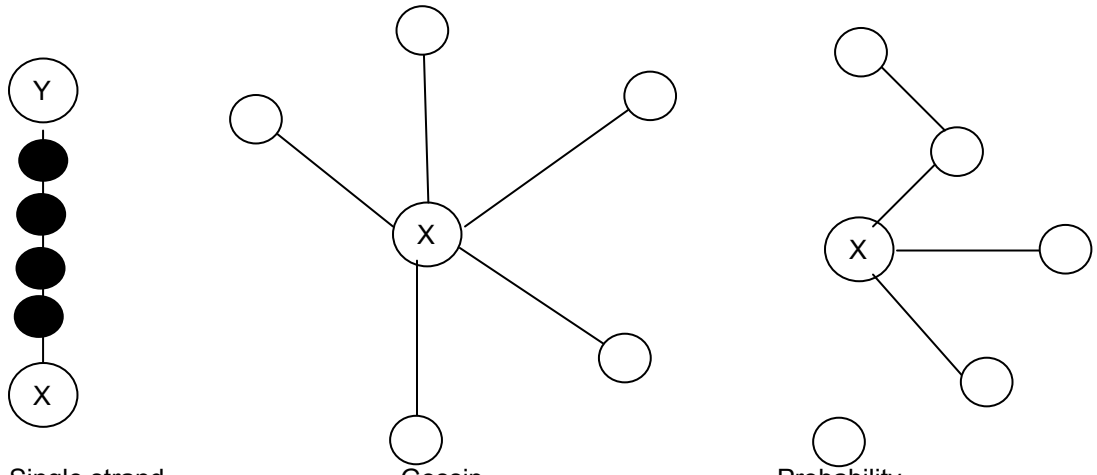
According to Pace and Faules (1994: 134), horizontal communication has six functions:

- Coordinating work assignments
- Sharing information on work plans and tasks
- Solving problems
- Achieving shared understanding
- Resolving conflicts
- Strengthening workplace interpersonal relationships

An important aspect of horizontal communication is informal communication. Horizontal communication provides numerous opportunities for satisfying informal communication.

Informal communication exists despite the formal organisational structures through which information is expected to flow. Informal communication flows in all directions and affects all organisational members (Davis 1969a). The dynamics of organisational communication embedded in the dynamic positional and personal relationships continues to be an important functional and relational wing (Luthans 1981: 339).

Davis (1954:25) argues that there are four types of informal communication networks:



Single strand

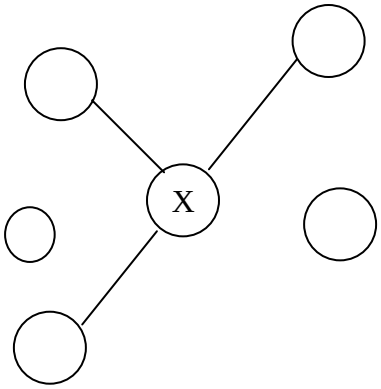
(X communicates with Y through intervening persons in a strand)

Gossip

(X nonselectively communicates with everyone)

Probability

(X communicates randomly with others according to the law of probability)



Cluster
(X selectively communicates with those he or she can trust)

Figure 3.2: Types of informal communication (Davis 1981:25)

Davis (1954: 45) has identified the impetus for informal communication:

- Workers find recent news good conversational 'stuff'.
- Workers talk about issues related to their work and careers.
- Workers talk about other organisational members they know.
- Workers spatially in close proximity to one another are likely to be informal conversational partners.
- Workers who work cooperatively because their work demands it are likely to engage in informal communication.

3.3.1 Horizontal communication satisfaction

Items measuring horizontal communication satisfaction include the following (Akkirman & Harris 2005: 409):

- Extent to which the grapevine is active in an organisational milieu
- Extent to which horizontal communication with other employees is accurate and free-flowing
- Extent to which communication practices are adaptable to emergencies
- Extent to which a work group is compatible
- Extent to which informal communication is active and accurate

However, the range of possible sources of horizontal communication satisfaction must be far more than those above and may subsume more areas than presently conceptualised.

3.3.2 The grapevine as informal horizontal communication

The grapevine as a form of organisational communication has the following characteristics:

3.3.2.1 Features of the grapevine

Grapevine communication is an informal dynamic line that has a powerful presence but that does not exist in the official communication structure. It cuts across all directions of communication and levels of organisation (Davis 1969b:3), but may be expected to be more common at the organisational grassroots. Literature on the grapevine is extensive but the following are some of the valid generalisations (Daniels & Spiker 1987: 102):

- The grapevine operates largely through the oral medium.
- The grapevine functions in clusters that involve workers with different roles: liaisons, isolates or dead-enders.
- The grapevine is driven by particular situations in organisations rather than by individuals.
- As soon as a person comes to learn of an event, they are likely to spread it afterwards.
- If the subject of the information is one in which the person is interested, they are more likely to spread it.
- The grapevine is more active within groups than between them.
- Up to 75% of the information in a grapevine is likely to be accurate. But baseless rumours sometimes discredit the grapevine for a while.
- Grapevine content is rarely complete, which makes it play a mere supportive role.
- The grapevine does have a role in organisational life, be it good or bad. But it is important to understand its strengths and limitations.
- The grapevine is used as much by managers as by ordinary workers.
- Grapevine information may start, spread and culminate in any section of an organisation.
- The types of rumours spread by the grapevine are anxiety rumours, wish fulfilment rumours and wedge-driving rumours.

3.3.2.2 Positive and negative aspects of grapevine communication

A number of positive and negative attributes of the grapevine have been identified in a number of studies (Papa, Daniels & Spiker 2008) that can affect communication satisfaction.

a) Positive aspects of grapevine communication

A major positive aspect of the grapevine relates to time. According to several observations, rapidity of diffusion tends to be one of the most important positive

aspects of this type of communication (Lorette 2012: 3). Thus immediately after a worker comes to know a secret, they may spread it with eagerness to their closest friends, who also pass it on to others instantly with similar curiosity and zeal. Given the rapid informal networks that are involved, most confidential information spreads fast across the board depending on its weight and consequence, powered by the invisible web (Smith 2005: 99).

Apart from its ability to spread information rapidly, this "most effective channel of communication" (Smith 2005:98) enables management to know staff attitudes to any new organisational policies and practices or any stipulated changes. The feedback is naturally more rapid than that obtained through formal timetaking surveys done through formal channels. The grapevine makes up for inadequate, ineffective or absent formal channels of communication (Mishra 1990:3).

Most of all, the grapevine serves a social function. As a weapon of the underdog, the grapevine may bring together and create a sense of oneness among organisational subordinates. It may create cohesive information groups (Mishra 1990:4). In another sense, the grapevine may have an affective function, namely a cathartic effect on otherwise tight workers who may feel constantly emotionally suppressed. In other words, it may be a distressor when organisational stories unfold in a dramatic manner.

b) Negative aspects of grapevine communication

As earlier indicated, although the grapevine has its merits, it also has its share of shortcomings. Thus information carried by the grapevine may be partial or distorted and fail to give a complete picture. Since the grapevine involves no responsible information sources, trust in the veracity of grapevine accounts may be compromised. The grapevine may also encourage more talk than work and affect productivity in addition to causing hostility against management. It may compromise organisational reputation since it may spread negative information about the executive which tarnishes its reputation.

Mills (2010:4) outlines the various motives for the spread of organisational communication, indicating that the grapevine can be a source of considerable communication satisfaction since it meets informational and relational needs. These motives essentially include information insufficiency and inadequacy of organisational communication structures, as well as a host of psychological processes and unaddressed needs.

In all, horizontal communication has considerable significance in addressing important emotional, interpersonal and morale needs as well as generating relational satisfaction for a large segment of the workforce (Nobile 2008:1), especially in high power distance and collectivist institutions like Ethiopia's. Horizontal communication and its variant forms as well as the other lines of communication discussed above are prominently related to another important construct – job satisfaction.

3.4 JOB SATISFACTION

Job satisfaction is considered a central construct that relates to affective and cognitive appraisal of one's job. The construct is about whether a worker feels or thinks they are happy with their job. Job satisfaction can mean different things to different workers, but there are areas generally believed to affect the job satisfaction of workers. Different researchers include these different constructs in their surveys of job satisfaction, guided by differing conceptualisations of job satisfaction. But there are also factors generally identified as core elements of or variables related to job satisfaction. One of these is communication as it pertains to interchange with supervisors or colleagues. Naturally jobs involve a degree of communication, as does organisational life in general. In other words, jobs have a social dimension which suggests pair work or teamwork of a particular kind. The social dimension involves communication or relationship in the organisational setting, indicating the integral nature of communication for professional and human needs (Pincus 1986).

3.4.1 The nature of job satisfaction

Many jobs necessarily involve a degree of communication vertically with the superior or horizontally with workmates. Therefore, communication is an integral part of professional functioning, although the degree of communication involved will vary across jobs. For this reason, it is difficult to conceive of the typical job without a communication component. Not surprisingly, numerous studies have documented the strong association between the constructs of communication satisfaction and job satisfaction (Knipp 1985; Pincus 1986; Pincus & Rayfield 1989; Pincus, Knipp & Rayfield 1990; Ehlers 2003; Ahmed 2006). Most of all, supervisory communication, including aspects of style, content and credibility, has been linked to job satisfaction (Pettit, Goris & Vaught 1997:81). Interestingly, even pay satisfaction as a dimension of job satisfaction is related to communication satisfaction (Gülnar 2012: 199). Given its strong association with communication satisfaction, job satisfaction warrants mention.

Job satisfaction has been defined primarily as an affective response to one's job situation, dichotomously in terms of liking or disliking or in degrees of liking or disliking on a continuum. As Spector (1997: 5) defines it, job satisfaction is the degree of positive attitude towards one's job. It relates to affective reactions towards one's job and its different dimensional features. The earliest and perhaps the most famous definition of job satisfaction is "a pleasurable or positive emotional state resulting from the appraisal of one's job on job experiences" (Locke 1976: 1304).

While job satisfaction can appear to be a simple case of liking or disliking one's job (Antoncic & Antoncic 2011: 590), nonetheless in decisions or descriptions of job satisfaction both affective and cognitive evaluations are actually involved, and therefore references to cognitive job satisfaction (Moorman 1993: 761) and affective job satisfaction (Kalleberg 1977:126) are common. Job satisfaction represents "the interplay between perception, evaluation and affect in judgments

of job satisfaction" (Judge & Church 2000: 166). Nevertheless, the respective contributions of affective and cognitive evaluations to attainment of job satisfaction are difficult to gauge, while it is true that cognitive and affective job satisfaction are caused by different factors (Fisher 2000: 185).

A broader conceptualisation was presented by Wanous and Lawler (1972: 95) who also operationalised job satisfaction in more ways than one. There are at least three important conceptual contributions in the excellent article by Wanous and Lawler (1972:95-97). Firstly, the facet approach to conceiving job satisfaction is laid out and the useful distinction between overall satisfaction and facet-specific gratification highlighted. Secondly, need importance or the weight given to particular facets by individuals is identified as a key consideration in the conceptualisation and measurement of job satisfaction. In simpler terms, the need importance relates to the priority of needs of a particular worker, whether these be concrete issues such as pay or more abstract features such as recognition. The final contribution is the contrastive approach to measurement of job satisfaction in terms of the Should Be – Is Now dichotomy reflecting the conceptualisation of job satisfaction as a discrepancy. This is also related to the expectations model of Fields (2002:14). This last approach in particular has influenced the way communication satisfaction has been measured as is evident in the International Communication Association Audit (Rubin, Palmgreen & Sypher 1994: 196). The fact approach also denotes the possibility of different measures focusing on different constructs, which may also relate to what specific factors relate to communication satisfaction, as discussed earlier under subsection 3.2 of this chapter.

An important question would be why the subject of job satisfaction is the most studied variable in organisational behaviour (Judge & Church 2000: 166) and, why, despite over 10 000 articles on the subject ((Harter, Schmidt, Killham & Asplund 2012:4), research interest has not abated as more recent studies show

Including Bentley, Coates, Dobson, Goedegebuure and Meek (2013), Aziri (2011), Schultz and Schultz (2010), and Baptiste (2008) would show.There are at least three important reasons that make job satisfaction such a fertile field.

Firstly, job satisfaction is studied because workers deserve to be treated with a measure of fairness and dignity (Spector 1997: 2). There is also the position that job satisfaction is related to affective wellbeing and psychological health (Miller 2003: 234; Faragher, Cass & Cooper 2005:105), both of which can be costly if unaddressed, to the individual worker personally and the organisation at large. Not surprisingly, Freeman (1978: 140) has called job satisfaction an economic variable with a deterministic effect on labour mobility. Thus dissatisfied workers may leave or become less productive, which implies a cost to the organisation.

The second justification is that, from a utilitarian position, job satisfaction can bring about behavioural features in workers that enhance organisational operations. A final reason is that job satisfaction reflects on the health of an organisation, which may include issues of financial and functional wellbeing (Judge & Church 2000: 166).

3.4.2 Dimensions of job satisfaction

While it may appear to be a unitary construct, job satisfaction is in fact multidimensional. As Spector's own facet typology would indicate, job satisfaction has nine facets: Pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, co-workers, nature of work and communication (Spector 1997: 8). The job satisfaction survey has good levels of validity and reliability as reported in several studies which used the instrument (Saane, Sluitter, Verbeek, Frings- Dresen 2003: 194-195). There are numerous other facets that reflect differing conceptualisations as well as measurements of job satisfaction in different professions. About 25 measures discussed by Fields (2002) indicate the considerable variety in the conceptualisation and measurement of job

satisfaction. Some of these have facets in common such as communication and relational trust.

3.5 RELATIONAL TRUST

Relationships are central to organisations. In fact, organisations are essentially about varied forms of interpersonal and other forms of relationships, including small-group relational communication as a normal part of organisational functioning. These relationships are characterised by interpersonally and perceptually differing levels of trust. The constructs of relational trust may be intertwined with communication satisfaction. As argued by Mazzei (2010: 225) and Pettit et al. (1997:85), trust enhances communications and quality of communications. This can strengthen trust in work relationships and promote communication satisfaction. But a full understanding of trust is important to have a fairly adequate understanding of the construct's role in organisational communication satisfaction.

3.5.1 Definition of trust

Owing to the complexity and dimensionality associated with trust, numerous scholars have come up with moderately divergent definitions that continue to draw multidisciplinary interest.

The definition of trust that seems to have produced the most agreement is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor irrespective of the ability to monitor or control that other party" (Mayer, Davis & Schoorman 1995: 712) The definition is suggestive of the capricious nature of relations and the fragility of trust and its consequences (Mayer, Davis & Schoorman 2006: 85). Another definition of trust focuses on interpersonal relationships in networks (Limerick & Cunnington 1993: 95-96).

As Limerick and Cunnington (1993: 98) would argue:

> the key value in networking, and the one that is most problematic…is trust. High levels of trust help reduce transaction costs… trust reduces uncertainty about the future and the necessity for continually making provisions for the possibility of opportunistic behavior among participants…

Trust lubricates the smooth and harmonious functions of the organisation by eliminating friction and minimising the need for bureaucratic structures that specify the behaviour of participants who do not trust one another. But trust does not come naturally. It has to be carefully structured and managed.

Central to many definitions of trust have been concepts such as risk, reliability, confidence and predictability. Context has also been an important dimensional element in trust definitions (Lewicki & Bunker 1996: 116). Thus Lewis and Weigert (1985:25) have in their definition of trust "confidence in the face of risks". The assumption is that different trust conditions are situation- or context-specific and can relate to the nature of the trust, the consequences of the trust and the nature of trustees.

Boon and Holmes (1999: 194) have a dimension of confidence in their definition: "a state involving confidence, positive expectation about another's motives with respect to oneself in situations entailing risk".

Trust has also been defined as a person's "expectations, assumptions or beliefs about the likelihood that another's future actions will be beneficial, favorable or at least not detrimental to one's interests" (Robins 1996: 576).

Similarly, Barber (1983: 164-65) perceives trust as confident anticipation "people have of each other, of the organisations in which they live and of the natural and moral social orders that set the fundamental understandings for their lives".

Interestingly, more aptly in common to all definitions is the belief that trust involves “giving discretion to another to affect one’s interests” (Hardin 2006: 23), based on a rational choice and an affect (noncalculative trust).

Trust is also “a particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action (Gambetta 1988:217). When we say we trust someone or that someone is trustworthy, we implicitly mean that the probability that they will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with them (Gambetta 1988: 70).

3.5.2 Conceptualisations of trust

Trust has been conceptualised in diverse ways in a number of disciplines, reflecting each field’s conceptual confines and unique lens.

Lewicki and Bunker (1996: 115) broadly summarise three approaches which reflect differing conceptual orientations relevant to the peculiar nature of the field studying the construct of trust in its own ways.

First is the view of personality theorists, who focus on individual personality differences in the readiness to trust and on the specific developmental and social contextual factors that shape this readiness. At this level, trust is conceptualised as a belief, expectancy or feeling that is deeply rooted in the personality and has its origins in the individual’s early psychological development.

Second is the view of sociologists and economists who focus on trust as an institutional phenomenon. At this level, trust can be conceptualised as both a phenomenon within and between institutions and the trust individuals put in those institutions.

Third is the view of social psychologists that have focused on the interpersonal transactions between individuals that create or destroy trust at the interpersonal and group levels. From this angle, trust can be defined as the expectation of the other party in a transaction, and the contextual factors that serve to either enhance or inhibit the development and maintenance of that trust.

These conceptual approaches have difficult divergence and can lead to conceptual confusion (Lewis & Weigert 1985: 975) and a confusing potpourri (Shapiro 1987: 625). In fact McKnight, Cummings and Chervany (1998: 3) have called trust a 'homonymy', meaning a term with diverse semantic possibilities.

3.5.3 Importance of trust

The importance of trust in organisations has been recognised markedly since the 1990s due to two relevant developments (Kramer 2006: 6). The first of these developments was the recognition of the considerable and diverse benefits that result from trustworthy organisations, as indicated in a substantial body of evidence (Puttnam 1982; Fukuyama 1995; Sztompka (1999) cited in Kramer (2006:7).

In particular, three categories of benefits have been identified as accruing from comfortable levels of trust in the organisational milieu. First, trust as social capital would be smooth transactional operations involving fewer costs relating to the manner or consequences of the transaction. The pain of distrust that leads to considerable care about formalised dealings is curtailed and a more relaxed relational/business climate can develop. The second advantage is a general unconstrained social cooperation among organisational staff. This background provides organisational members with comfort, confidence and freedom from anxiety about outcomes of shared projects and mutual undertakings. Thirdly, there is a pay-off in the manner of appropriate communication of recognition and respect accorded organisational superiors. An added advantage is that superiors'

compliance-gaining strategies become more successful, which may be followed by enhanced commitment to organisational goals.

The second development contributing to the increasing importance of trust has been the recent “crisis in trust” (Kramer 2006:7) reflected in the drastic deterioration of trust placed in institutions or institutional leaders ranging from political organisations to business corporations (Coleman 1990: 35; Carnevale 1995: 21). The issue of trust has clear relevance for communication and communication satisfaction.

3.5.4 Trust, communication and communication satisfaction

Trust, communication and communication satisfaction are interrelated. The trust variable is believed to determine “the quality, level, content and directionality of communication” (Klauss & Bass 1982:23). High levels of trust can lead to “the communication of undistorted, truthful, or candid information” (Mishra 1996: 273). In the absence of truthful communication, workers cannot fully and sincerely communicate with management in fear of consequences. Thus the absence of quality communication may lead to low trust levels in the management. Trust building can be done through effective communication by managers (Thomas, Zolin & Hartman 2009: 289). The behaviour of the manager can influence trust perceptions.

There are three communication variables related to perceptions of managerial trustworthy behaviour. According to Whitener, Brodt, Korsgaard and Werner (2006: 147), information accuracy, elaboration for decision and openness explain trust in a manager more than other communication variables. With accuracy of information comes confidence in decision making and comfort issuing from a sense of control. Thomas et al. (2009: 302) found that there is a significant relationship between quality of information (timeliness, accuracy, usefulness) and quantity of information and trust as well as openness. Information helps to reduce uncertainty and to enhance satisfaction (Hargie et al. 2002: 430; Beccera &

Gupta 2003: 37). There is also a relationship between open communication and the development of trust (Tourish & Hargie 2002: 13).

Indeed, trust comes from knowledge acquisition, which is made possible through communication. The more the workers know about the organisation and the management, the more likely they are to have enhanced trust. Witts (1967: 102), Read (1962: 8) and Marret, Hage and Aiken (1975: 669) have demonstrated that closed communication can lead to employee dissatisfaction. Closed communication implies secrecy and the absence of open channels, which creates apprehension in the subordinate. The tension is likely to breed fear, resentment and insecurity, which may manifest in the production of anxiety-based organisational rumours that further intensify the dysfunctional tension in the subordinate.

Open communication climates that allow participation in decision making remove creative fears and produce communication satisfaction because the participation helps the subordinate to acquire essential information firsthand and to discredit with confidence low quality rumours from the grapevine (Butler 1991). As uncertainty reduction theory (URT) would predict, insufficient information leads to agitation, and more essential information shared would mean less uncertainty for the worker and probably more communication satisfaction. Therefore there is an essential relationship between trust and communication and trust and communication satisfaction (Whitener et al. 2006: 147). But the communication climate as the socio-emotional tone of work relationships is equally important (Adler, Rosenfeld & Proctor 2001:266), which is also essentially related to communication satisfaction.

3.6 COMMUNICATION CLIMATE

Communication climate is identified as one of the sub/constructs of communication satisfaction as related to organisations because it refers to the

psychological environment of communication in the workplace. This can be taken as a significant mirror of the broad interpersonal and subordinate–superior organisational relational psychology. Thus communication climate is a perceptual index of the socio-emotional atmosphere of an organisation from a communication perspective. It denotes an individual worker's evaluation of a relational and informational interchange of an organisation which may be read as a script differently on an interpersonal basis. Neher (1997: 95) argues that communication climate relates to the manner in which staff perceive their organisational communication experiences and represents a summary description of the state of communications in an organisation. Similarly, according to Pace and Faules (1994: 100) the construct of communication climate denotes "a composite of perceptions – a macro-evaluation of communicative events, human behaviors, responses of employees to one another, expectations, interpersonal conflicts, and opportunities for growth in the organisation".

Pace and Faules (1994: 100) argue that importance of communication climate is such that it impacts our lives, our conversational choices and practices, our interpersonal attitudes, our effective states, our motivational levels, our goals and our harmony with the organisational environment Indeed the appraisal of the climate of communication relationships is directly linked to organisational communication satisfaction. For this reason measures of communication satisfaction have a construct of communication climate as a unit of observation..

Redding (1972:25) states that an ideal communication climate, which has positive implications for communication satisfaction, is characterised by:

- supportive vertical communication
- participation in decision making
- the level of trust and confidence in organisational communication

- quality of relationships among organisational actors horizontally and vertically
- high performance goals.

In addition to the above, there are other conceptualisations of communication climate which have included multidimensional approaches that complicate conceptualisation. This is because they include individual multidimensional constructs such as trust, confidence and communication satisfaction, as well as constructs such as frankness, openness, fair treatment, information adequacy and semantic information distance (Krivonos 1978: 53). Not surprisingly, Hill and Northhouse (1978: 37) come to the conclusion that "communication climate is characterised by complexity". After a review of the literature Falcione, Sussman and Herden (1987: 195) ranked climate among the very rich concepts that have drawn significant theoretical and empirical interest.

The organisational structure, the physical layout as either tall or flat (Neher 1997: 153), can affect the communication structure and hence the communication climate and its attributes. Among the functions of communication structure are social support, integration, information processing as well as uncertainty management (Johnson 1993: 5-11). These may interact in various ways to influence communication climate as well as communication satisfaction. An understanding of how climate comes to be formed may indicate what factors that give rise to a particular communication climate can also influence communication satisfaction.

3.6.1 Formation of communication climate

The creation of communication climate may essentially relate to management's role as the idea of the ideal managerial climate would tell us (Redding's own term) (Redding 1972). Indeed the managerial role cannot be underestimated as leaders may be followed by subordinates as behavioural models. Management is often responsible for the tone of the workplace or the psychological environment

(Cheney, Christensen, Zorn & Ganesh 2011:28), since much of what goes on is a possible reflection of management practices. Hence the policies, styles, practices and numerous other facets of management can be mirrored in how organisational members interrelate horizontally or vertically. Besides, organisational culture and its impositions of values and dictates of behaviour can decide on the nature of a particular communication climate (Redding 1979). The idea of culture would involve groups and groupings; hence pinning the formation of communication climate to one particular variable would be to oversimplify the complex phenomenon. Indeed, the issue of communication climate is intricately complex, but the complexity has not been matched by any significant theorising or research into this very interesting construct.

At least we know, though, how individual perceptions can be formed and how these can affect individual employee attitudes toward the employer organisation as well as their work (Pincus et al. 1990:176). Our knowledge of individual perceptions is that communication climate can markedly vary interpersonally or intra-organisationally owing to a number of explanatory variables. One is how justice perceptions influence perceptions of climate. In fact, the construct of interactional justice suggests that not every organisational member can feel in the same manner to be fairly treated communicationally (Tyler & Bies 1990: 82; Greenberg 1993: 85). This may also be explained by the theory of leader member exchange, which postulates that since the communication resources of a manager may be limited, not every staff member can be equally treated informationally and relationally (Mueller & Lee 2002: 220).

Thus a manager may have limited time for organisational interpersonal interaction, making imperative the unequal distribution of interpersonal communication attention. Since communication demands energy and emotion and since these are constrained by competing demands, leader member communication can be marked by perceptions of interactive injustice (Sias 1996: 176; Lee 1997: 272; Kramer 1995: 51).

But the definition by Dennis (1974: 29) of communication climate as "a quality of the internal environment of the organisation, identifiable through reports of members' message related events, occurring in the organisation" fails to answer the important question of how such a climate is formed or evolves. Nor is there any suggestion of the stability of such climatic perceptions, although the notion of climate would imply perceptual variability over a given temporal context. The variability includes perceptions of deferring climates.

3.6.2 Types of communication climate

Experienced workers will often present a succinct description of their organisational communication climate as a result of a direct experience with the full range of organisational activities, policies, philosophies and styles. Supportive climates can have a positive consequence for all organisational actors as well as external publics. Closed climates, where openness and trust are unknown, will have an infectious consequence and even affect external publics of an organisation. Organisational workers may reciprocate the closed and mistrustful manner in which they are treated and similarly treat customers and other interorganisational interactants.

Communicative climate is perceptually influenced by one's diverse communication experiences with different organisational participants in the communication sphere. Neher (1997:96-97) identifies three communication patterns that shape particular communication climates, showing that climate should be understood as a conceptual umbrella rather than just a single holistic phenomenon. Thus communication with top management decides the overall climate and whether it is perceived as supportive or closed. Secondly, communication of the dyadic subordinate-superior type at another level produces a sub-climate of supportive/oppressive fair/unfair treatment, and participatory/authoritarian conditions. Climate is also manifest in group communication or horizontal/informal communication. However, these sub-

climates may be most affected by the communication climate set by top management, since many organisational members follow the example of the leadership. For instance, a tyrannical management style may produce a climate of fear (Ashkansay & Nicholson 2003: 24) or a general shared workplace apprehension (Rachman 1974: 15).

According to Dennis (1974: 38), climate may perceptually be a function of superior-subordinate communication and quality of information. A suggestion in the notion of climate is a common perceptual state or experience. Hence a climate of fear can be a shared negative emotional state which in its own right may creep into the way organisational members communicate (Reichers & Schneider (1990: 25). The contagious nature of the fear may therefore breed an all-out anxiety which is communicated through fast networks, especially through the grapevine.

However, it may also be argued that climate is basically in the eye or ear of the beholder (Neher 1997:95). Therefore, in addition to the directional climates, there may be individual-level or group-level climates. It may be that communication climates can vary within organisational demography. Youthful and inexperienced communicators may have a markedly different communication climate perception than experienced communicators. Differences may also be observed along gender lines, occupational categories and ethnic categories, in which case minorities may have their own climate perception owing to their unique circumstances, which may also be related to communication satisfaction. As indicated earlier, Redding's broad conceptualisation of communication satisfaction includes quality of vertical communication and relationships. One way this may be manifested is perhaps in job feedback.

3.7 FEEDBACK

3.7.1 Conceptualisation of feedback

Feedback is information that serves to influence the performance of an individual in an organisation, and improved performance is desired by both individuals and organisations (Miller 2003: 213). Wiener, who first introduced the construct, defined it as “a method of controlling a system” (Wiener 1954: 61), but later studies have shown that feedback affects performance and attitude differently and has even served as counter-productive input (Fairhurst 2001: 395). Feedback may also be understood as a “self-monitoring response that allows individuals to modify their behavior until it meets their expectations” (Hamilton & Parker 1987: 17). According to cybernetic systems theory, feedback has an important role in maintaining system functioning through corrective input (Miller 2003: 82). London (1997: 1) argues that feedback serves to guide, motivate and reinforce effective behavioural qualities and discourages those that are not. Hall (1991: 170) contends that feedback provision is an aspect of downward communication focused on performance standard reports given to subordinates. There are several qualities that can affect the communication satisfaction obtainable from feedback quality and its delivery.

3.7.2 Traits of feedback

The importance of feedback is widely acknowledged (Hamilton & Parker 1987: 17; London 1997: 14-15). Luthans and Martinko (1979: 102), Neher (1997:202-3) and Miller (2003: 215-16) have identified a number of features of this important construct that have implications for feedback communication satisfaction:

Intention: Effective feedback aims at enhancing the performative competence of subordinates and making them better workers. It is not meant to personally threaten the workers or diminish their ego. Effective feedback is fully and exclusively job-related.

Specificity: Effective satisfying feedback is detailed, but at the same time specifically and clearly highlights individual aspects of the job in an unmistakable manner. Dissatisfying and ineffective feedback, on the other hand, is characterised by vagueness and generalities. Job feedback in the form of 'good', 'poor' and 'impressive' does not say much and serves to confuse the subordinates. It also fails to empower and enhance the worker since it is not diagnostic and targeted.

Description: Effective satisfying feedback is descriptive rather than judgemental. It provides a portrayal of the objective performance of subordinates and not an authoritative judgemental view of their work.

Utility: Effective feedback is intended to be useful to workers to improve their performance and competency. Feedback that does not improve a worker only serves a negative purpose or is a waste of time. Feedback is an input and the output is improved performance.

Timeliness: Satisfying feedback is appropriately timed to be effective. To be of utility, feedback should be current and provided fresh. There is little incremental value in historical feedback and little washback effect.

Readiness: Supervisors should ensure that subordinates are in the correct state to receive and make use of feedback before providing it. Subordinates who are ill-prepared for feedback are not likely to be satisfied with feedback supplied when they are not ready to receive it.

Clarity: To be satisfying, feedback must be communicated clearly. The communication of feedback should be checked for effectiveness by, for instance, asking the subordinate to rephrase the feedback provided. The supervisor may also observe the nonverbal cues of the recipient to make sure the feedback is clear and has been received.

Validity: Reliability and validity of feedback are essential ingredients of effective feedback. Feedback should be about the performance of the subordinates, not a comment on their personality or other variable unrelated to the subject of job performance. Feedback validity can affect the communication satisfaction of a

subordinate. Irrelevant comment cannot satisfy a subordinate keen on hearing a performance report from a superior.

Callahan, Fleenor and Knudson (1986: 145) as well as Luthans and Martinko 1979: 183) further state that the communication satisfaction of a subordinate can be affected if feedback is:

- meant to undermine an employee
- unfocused
- judgemental
- irrelevant
- mistimed
- able to cause defensive behaviour
- complex
- full of inaccuracies.

It should be noted that the phenomenon of noise in the feedback communication can cause dissatisfaction. Noise can occur in the form of psychological, organisational (the way feedback is organised), attitudinal, gender, or generational variables. The literature on the effect of these variables in feedback communication is sparse, pointing to the need for further comprehensive exploration of the dysfunctional elements in feedback communication.

All the same, the philosophy of a particular organisation has a lot to do with the manner of communication of feedback and the planning and management of its consequences as well as the expectations and roles of those involved.

In classical organisations, feedback is unidirectional and the subordinate has a mere receptive function, i.e. to fully and unquestioningly accept managerial feedback. This has implications for satisfaction in communication (Miller 2003:16).

In a discussion of dualisms of leadership communication, Fairhurst (2001:382) distinguishes between leadership as a monologue and its attendant transmission view of communication and leadership as dialogue and its consequent meaning-centred view of communication.

The transmission view of communication assumes that communication is objective and so the feedback communicated is equated with objective reality. Reality resides with the message source - the superior - and the subordinate's role is merely to decode the objective communication, and to receive meaning as sent by the manager. In contrast, the dialogue view of communication assigns a shared meaning making role to the subordinate. Superior and subordinate are partners in meaning making or co-construction of meaning (Gergen 1985: 269).

3.7.3 Communication satisfaction issues in feedback delivery

Feedback provision has been called a sticky issue (Hall 1991:170). Despite continuing research, it seems that feedback communication continues to present an intellectual challenge. In fact, it continues to be viewed as "a black box" and the challenge remains to change "this rather unguided missile of organisational behavior management into a powerful weapon" (Van de Vliert, Shi, Sanders, Wang & Huang 2012:3). It has been noted that "feedback evokes covert informational, relational, emotional, and behavioral reactions in the recipient" (Van de Vliert et al. 2012:3-4). It is usually not a challenge to give uplifting feedback since emotional reactions cannot be expected to be negative.

More often, feedback communication may be likened to communication of negative personal news. There may not be much that is pleasurable in receiving negative news. Whilst feedback can be both positive and negative, it is the negative element that is challenging to the supervisor to communicate and to the subordinate to take happily and rationally (Stephan & Dorfman 1989: 28). Another challenge is that depersonalisation of feedback may not be that easy. Indeed, the evaluative component in feedback given may cause a host of negative reactions (Kiesler

1996:35). A primary reason is that negative feedback may be a challenge to the ego. Since negative evaluation may negate the self, it may be unwelcome, or welcome to very limited degrees. This seems to indicate that there may be an inherent contradiction between critical evaluation given and satisfaction obtained. The challenge therefore is to offer critical feedback and to generate communication satisfaction at the same time as in the case of marginal performers (London 1997:96).

Feedback communication can lead to satisfaction or dissatisfaction in relation to constructive or destructive feedback. There are three types of behaviour pertinent to feedback communication (London 1997: 18): control-dominated behaviour, reward-dominated behaviour and affiliation-dominated behaviour. In control-dominated behaviour, the supervisor giving feedback wishes to use the opportunity to demonstrate their superiority to the feedback recipient through self-aggrandisement and mortification of the subordinate. In contrast, in the reward-dominated feedback category, the supervisor aims to tie performance to offers of rewards and clearly has a motivational concern. The affiliation-oriented feedback giver is also positive, seeks a solidaristic stature and demonstrates a sense of camaraderie to the subordinate. These three behaviours clearly have differing consequences for the communication satisfaction of the subordinate.

3.8 SUMMARY

It has been said that constructs help by ordering observation, making scientific progression possible. The identification and specification of constructs is essential for instrumentation to succeed. In this light, all the constructs related to organisational communication satisfaction as presented in the proposed instrument of organisational communication satisfaction have been thrashed out in detail. This chapter discusses diverse constructs of organisational communication satisfaction which are fore-grounded in preparation for the actual instrument testing.

The literature identifies a number of existing constructs of communication satisfaction and their corresponding varying degrees of conceptual purity. Although constructs of communication satisfaction can be approached from several angles, the commonest line of analysis is based on direction-based communication satisfaction. Based on directional analysis, what comes to mind most readily is downward communication satisfaction. This line is most important in the sense, among other things, that there are far more subordinates than superiors, a fact which becomes easier to see as one reckons that downward communication pertains to informational and relational issues revolving around a superior located at the top and a subordinate predominantly receptively placed at the bottom. More precisely, the construct pertains to communication satisfaction issues of a subordinate at the lower level of the communication structure.

Another directional construct is upward communication as unambiguiosly operationalised in many communication evaluation surveys. This line of communication has numerous functions for the subordinate who communicates upwards with his superior about the job, sending performance reports, asking clarifications or other categories of supervisory feedback. Aside from information communication, it should be noted that relational affect is also exchanged in upward communication as in downward communication as organisations are not necessarily mechanical occupational settings.

The third directional facet discussed in this chapter is horizontal communication , which is a non-positional format involving communicating peers in work settings with tremendous potential to impact the communication satisfaction of the workforce. This line of communication may be about work issues and often about interpersonal issues that are simply human. However it is not necessarily rigidly structured as human communications cuts across all forms of boundaries. Aspects of horizontal communication include informal and grapevine communication which present remarkable opportunities for more relaxed communication in a more natural conversational community with fewer inhibitions and restrictions. The chapter also discusses issues of channel selection,

communication barriers, and challenges, pertaining to horizontal communication and other directional constructs and their consequences for communication satisfaction.

Another important facet related to communication satisfaction is job satisfaction. The present chapter elucidates the nature of this important construct and how it can impact communication satisfaction. The intricate link between job satisfaction and communication satisfaction is evident in many job satisfaction measures which invariably contain a communication dimension. In addition to work satisfaction, the chapter further discusses the extremely important construct of relational trust, its meaning, its risks and its consequences for communication satisfaction. Trust is presented as a construct that produces emotions of danger or comfort depending on the perceived chemistry of a particular relationship, which affects the degree and quality of communication and communication satisfaction.

The construct of trust is a possible ingredient of communication climate, which is another construct affecting intraorganisational communication satisfaction. It relates to a worker's perception of the communication environment and all the communication activities, structures, policies as well as the psychological atmosphere relating to communication within the organisation. The chapter shows how communication climates can be closed or open, positive or negative, with implications for communication satisfaction. A final construct discussed is feedback, which is simply job performance communication serving instrumentally as a source of guidance, motivation and reinforcement. The issue of communication satisfaction is related to feedback quality including aspects of delivery, timeliness, clarity, adequacy and utility.

Although the various constructs discussed in this chapter are related, the degree of their relationship is less well established. The next chapter reviews auditing of communication satisfaction and its utilisation in the evaluations of intra-organisational communication.

CHAPTER 4: COMMUNICATION AUDITS

4.1 INTRODUCTION

The previous chapter identified what may be considered as essential elements in the conceptualisation of organisational communication satisfaction. The constructs discussed as multidimensional components of organisational communication satisfaction need to be tied to communication auditing in the organisational context. In other words, the auditing of communication satisfaction addresses the six constructs considered desiderata. These constructs address the structure, flow and usefulness of information (Badaracco 1998: 30), as well as relational issues that need to be evaluated periodically to help the organisation prevent communication defects and dissatisfaction, which are costly.

In a communication audit, the most significant resource to be addressed is primarily the employees on whose state the organisation decisively depends for the common organisational goal (Mersham & Skinner 2001:4), although the satisfaction of all stakeholders can also be assessed in an integrated manner (Walt 2006: 2). As this chapter demonstrates, a communication audit can unravel the level of satisfaction of organisational staff with regard to information adequacy, immediacy of supervisors, relational difficulties and a plethora of other communication variables that impinge on satisfaction, which should be critical feedback to management (Downs & Adrian 2004: 15).

The often preferred audits of communication satisfaction are quantitative in design (Van der Walt & Breet-van Niekerk 2007:336) and gauge functional aspects of organisational communication (Rubin et al. 1994:61) consistent with “a positivist model of organisations” (Jones 2002:468). However, there are also the less common interpretivist assessments with a “language turn” (Jones 2002: 467) that focus on the individual worker as engaged in sense making and meaning

generating. There are also critical approaches (Clair 1994:240) that have a humanistic orientation to organisational communication as well as its assessment. They also have a manifest emancipatory agenda that bases itself on the assumption of the political nature of communication in organisations as well as the way it is audited (Badaracco 1998:28).

This chapter first presents a discussion of the nature, relevance, functions and types of communication satisfaction audits, their strengths and weaknesses, and then reviews existing approaches to communication auditing. Finally diverse auditing techniques and methodologies are presented in a comparative perspective. The chapter focuses on quantitative communication auditing, which is the orientation of this study.

4.2 OVERVIEW OF COMMUNICATION AUDITS

Communication is one of the four key organisational activities in addition to control, coordination and planning (Booth 1988:7). Given the importance of communication, an evaluation of its varied features is in place to increase staff efficiency (Shockley-Zalabak & Ellis 2000:384). The diagnosis, evaluation and management of organisational communication cannot be treated as a light subject considering the costly consequences of unaddressed communication maladies as documented in a great deal of research. Audits function as the focused and targeted examination of an organisational communication programme.

Goldhaber (1976: 6) wrote on “the dismal state of our theory and measurement”, calling for more theorising and psychometric refinement. The three areas of auditing as summarised by Goldhaber (1976:6) are flow of information, content of message and attitudinal affective and perceptual features of organisational members. But Downs (1988: 42) later observed that “in a real sense most communication audits are heavily based on satisfaction” with communication, adding that “satisfaction has become a standard by which the organisation is

judged by its own people". Du Plooy (2009: 359) concurs with the above view when she says that audits provide attitudinal and perceptual data about the different elements of the communication process in the organisation. Communication satisfaction auditing may also address affective and cognitive reactions to the informative, regulative, persuasive and integrative functions of organisational communication as outlined by Koehler et al. (1981: 9-10).

Hargie and Tourish (1993: 282) have called for a refinement and further development of audit instruments and underline the need to test them in different contexts. As Barker and Angelopulo (2006:74) argue, contexts are important to organisational communication and as such the managerial and institutional context may determine what audit approaches are actually taken. But before discussing audit approaches, it is essential to provide a definitional framework for communication audits.

4.2.1 Definition of communication audits

Audit definitions convey the myriad positions and ideologies that revolve around the idea of communication and the functions of organisational communication and its role in organisational life. According to Badaracco (1998: 29-30), the communication audit is a "tool to help communicators manage" or an "instrument to help managers communicate".

According to this view, the audit is:

- a snapshot of communication experiences that are also ongoing periodically
- a tool to demonstrate the relevance of budgets for communication operations
- a curative intervention for communication maladies.

Similarly, but more succinctly, Booth (1988:8) defines communication audit as "the process whereby the communications within an organisation are analysed

by an internal or external consultant with a view to increasing organisational efficiency". Downs (1988:3) defines an audit more comprehensively as "a process of exploring, examining, monitoring or evaluating something" (communication in our case), while Kopec (1982: 24) provides a broader definition. Thus a communication audit:

> …is a complete analysis of an organisation's communications internal and/or external designed to "take a picture" of communication needs, policies, practices, and capabilities and to uncover necessary data to allow top management to make informed economical decisions about future objectives of the organisation's communication.

Even more comprehensive is the definition by Emanuel (1985: 50) of a communication audit as "a comprehensive and thorough study of communication philosophy, concepts, structure, flow and practice within an organisation".

The above definitions tell us about the diverse views on communication auditing, its components, focus, goals, as well as the scope of the audit function. However, a more thorough understanding of the nature of communication auditing is important for the development of instruments of organisational communication satisfaction as the concern of communication auditing.

4.2.2 The functions of communication audits

It has been said that communication is all-pervasive in the organisation (Hargie & Tourish 2004: 236); organisations may be understood as conversational communities with a designated purpose and a sense of mission. Best management practices now promote open communication, employee participation, empowerment and partnership (Tourish 1998: 102; Quirke 1995: 76) and address workers' communication needs.

There are two suggested categories of communication needs of workers that, if unmet, may lead to communication dissatisfaction (D'Aprix 1996:29).

Part One: What's in it for me? (WIIFME) questions

- What is my job?
- How I am doing?
- Does anybody give a damn?

Part Two: What's in it for us? (WIIFU) questions

- How are we doing?
- How do we fit into the whole?
- How can I help?

Whether the above needs are met can be determined using appropriate appraisal methods and means. Communication audits are the means employed to assess the organisational communication needs of employees. The communication evaluations help organisations to periodically check their communication practices and to determine whether staff and management have complaints relating to informational and relational communication that stand in the way of the smooth running of an organisation and its development. Several writers have shown the numerous benefits of communication audits from a wide variety of angles. For instance, Hamilton (1987:4) states that a communication audit addresses:

- interpersonal or group face-to-face communication
- correspondence of all descriptions
- communication networks relating to individual employees, units and divisions
- communication media and communication interaction statistics
- content of communication, its level of clarity and utility
- information requirements of staff and organisational units
- communication technology use
- grapevine activity and its motivational consequences
- organisational nonverbal communication
- communication climate.

Booth (1988:8) proposes a wide variety of functions of a communication audit. An audit of communication may:

- determine aspects of information load with regard to sources and channels of communication as well as subjects of communication
- assess the quality of information communicated internally
- diagnose the organisational communication relationships, including factors such as interpersonal trust and work satisfaction
- examine the nature and function of communication networks in the organisational setting
- evaluate communication network roles with a view to identifying information traffic barriers
- investigate communication experience reports of individual workers
- map out individual, group and organisational level communication behaviours
- suggest a set of recommendations for improvement as necessary in all forms of organisational communication.

Emanuel (1985, cited in Booth 1988: 9) says that communication audits have several aims. To start with, they are helpful in the evaluation of the efficiency of communication interventions, besides aiding in the analysis of present or future communication challenges. They can also assist in the determination of whether communication challenges are occurring due to a communication policy employed by an organisation. Communication audits can further show how communication can be causatively related to other organisational spheres and issues. Communication audits can also justify communication program improvement budgets. Any improvement itself can be gauged using a communication audit with benchmarks in place.

The roles of communication audits as outlined can be categorised and summarised under three broad functions as indicated by Goldhaber (1976: 5).

- Diagnosis and its benefits – identification of the strengths and weaknesses of the communication practice can lead to intervention by way of communication training to staff and management.
- Evaluation – measurement values of communication diagnosis made can be compared against a later evaluation of a communication experience to arrive at the effect of an intervention.
- Control – early diagnosis and discovery of communication defects allows the organisation to make an intervention before the problems of communication aggravate and spiral out of control. Early detection provides an opportunity for a sense of control.

Organisational communication audits provide the following more detailedl benefits which can help the audited organisation to have an improved communication anvironment.

- A perceptual picture of an organisation's communication features – incidents, practices and ties are analytically presented in relation to demographic features, including age, gender, level of education, position, administrative division etc.
- A map of informal, social and professional communication networks
- A report of demonstrated communication behaviours showing discrepancies between imagined and real communication with regard to sources, topics, media, quantity and quality
- A body of recommendations with regard to attitudinal, behavioural and practical communications matters that should be sustained, modified or discarded
- Induction of organisational personnel in audit instrumentation and administration protocols to help the organisation concerned to self-initiate and take control of communication auditing in future

- Access to communication audit databank enabling the organisation to draw comparisons between the present and future audit reports of related institutions (Goldhaber & Krivonos, 1978:31)

In addition to the advantages detailed above, Hamilton (1987:6) identifies several audit benefits which include productivity improvements, better utilisation of communications and communications technology, more efficient use of time, discovery of unexplored information resources, enhanced morale state and cultural development of the organisation into a more dynamic state. Similarly, Du Plooy (2009: 359) states that audits furnish attitudinal, perceptual and actual communication behaviour in relation to the varying components of the communication process (e.g. information sources). Audit methods provide a flexible use of one or more techniques that are appropriate to the research objectives, the nature and extent of the problem and the subjects of the study. Du Plooy (2009:359) further says that audit instruments can be, as in the case of the questionnaire, suited to the make-up, vision and mission statements of an organisation to be audited.

In spite of the numerous benefits as delineated above, the complexity of communication practices and experiences can be claimed to detract in a modest way from the value of communication audits. Goldhaber (1976: 9-10) has pointed out deficiencies of many communication audits as noted in numerous audit reports.

The first weakness pertains to situationalism. Most audits have been limited to single organisations and the datasets acquired have been decried as lacking breadth to warrant any generalisability. This is also affected by the lack of standard instruments and the proliferation of confusing instruments over abundance and unmanageable diversity. Generalisability could be made easier through the employment of limited standardised scales to measure organisational communication.

Then there is the issue of sampling related problems. Many audits have employed samples that are small and unrepresentative to be of any significance in terms of producing a correct communication picture as is necessary. Small samples mean a local picture that does not reflect the reality of a large organisational system with subsystems. A further problem is the absence of psychometric standardisation and lack of development of norms. Goldhaber (1976:10) concedes that, there is for many instruments, no published normed database. The absence of norms is a sore point. Without them, there is no possibility of interorganisational comparison in terms of communication systems effectiveness or ineffectiveness or levels of satisfaction.

Another problem relates to content validity. No communicative measure seems to have exhausted the possible plethora of communication behaviours to measure. Communication is conceptually intricate and the complex cities inherently make isolation and measurement of all behavioural manifestations difficult, perhaps impossible. Contingency approaches point to the possibility of every communication act being different and contextual in infinite ways. Reliability issues also plague many audits. A great deal of communication evaluation is episodic and data from unrepeated single episodes may not produce a reliable picture. Reliability is often associated with a repeat administration of instruments and reproducibility of scores. Evaluative snapshots may produce misleading results given the dynamism of the communication process. What is required for a fuller picture to emerge is not a snapshot, but a movie (Goldhaber 1976: 10).

4.2.3 Focal areas in communication evaluation research

The large body of empirical research that has accumulated over the years of communication evaluation has concentrated on three pivotal areas of organisational communication which are constitutive of the field. These are information flow, message content and the attitudinal, affective and perceptual state of those involved in communicating organisationally (Goldhaber 1976:6).

4.2.3.1 Information flow research

According to Goldhaber (1976: 6-8), based primarily on the classical orientation of control, message issues cover the following:

- Direction of flow (vertical, horizontal, diagonal)
- The organisational communicators that relay messages
- Message flow channels
- Identification of network roles (isolates, liaisons, bridges, gatekeepers)
- Duration of message dispersion in a communication system
- Types of messages and designated recipients
- The number of communicators with regard to particular messages
- Channel load or underload
- Purpose and effect of messages

4.2.3.2 Message research

Organisational communicative messages are studied content-wise based on concerns such as:

- purpose of message
- message distortion, including omissions, increments and modifications
- message content (its accuracy, appropriateness, timeliness, credibility, value and competence to produce satisfaction)
- message redundancy (or superfluousness).

4.2.3.3 Perception studies

Primarily rooted in human relations theories, perception studies investigate attitudinal and affective reactions to organisational members about the communication practices and communication climate in their organisational milieus. Perceptual research in organisational communication generally addresses:

- satisfaction with superiors' communication practices as well as with those of workmates, subordinates, top management and the grapevine
- the relative importance of communication sources
- communication source credibility
- openness of communication climate
- adequacy of information from concerned sources and their chosen channels
- sufficiency of information on particular issues and topics
- feedback and action on message communicated
- participative climate for subordinates
- clarity of communication of goals and objectives
- relational aspects of organisational members
- support for staff and reward systems in place
- communication opportunities on particular topics to direct messages to particular recipients.

Extensive work has been done on the above areas and audit methodologies with diverse audit goals, philosophies and procedures, as demonstrated in the works of Coffman (2004: 1-10), Downs and Adrian (2004: 36-47), Botha and Boon (2003: 30), Henczel (2000: 216), Orna (1999: 35), Buchanan and Gibb (1998: 34), Downs (1988:11-49), Sincoff, Williams and Rohm (1988:580) as well as Cortez and Bunge (1987: 45-59), but none has addressed satisfaction as a major audit objective.

4.3 THEORETICAL PERSPCTIVES IN COMMUNICATION AUDITING

Conceptual schools informing communication evaluation have generally been functional, interpretivist and critical and more recently feminist. This study is informed by the functionalist theoretical brand since it addreeses the issue of communication satisfaction from the angle of quantification and modelling.

4.3.1 Functionalist school

Putnam (1982: 195) contends that the predominant approach in organisational communication is the functionalist view. Two positions - the organic and machine metaphors - come under the umbrella of the functionalist school. The functionalist view of communication (which also has variants) is objectified, as is the conceptualisation of organisations, which is a metaphorical machine. The focus of such thinking is predictability, control and efficiency. Efficient organisational communication is likened to efficient machine communication. Hence there is focal attention to functional aspects of organisational communication, including load, adequacy, timeliness, feedback as well as instrumentation. This includes the use of channels and channel effectiveness as well as networks of communication and communication structures.

The second view is the view of organisations as organismic systems that have subsystems that must interact constantly and have an adaptive capacity. This may also be related to the open systems view of organisations, which postulates that sustained organisational survival depends on organisational interaction with the external environment from which essential energy is continuously obtained.
The third strand of functional approaches is the cybernetic school which views organisations as information processing systems (Putnam 1982: 197). Thus the lens provided by the cybernetic model brings into view the absorption of organisational information and the relationship between information and decision making. Equivocality as a feature of organisations has been treated in relation to communication cycles in cybernetic conceptions (Putnam 1982: 197).

In summary, according to Faules (1982: 194), society has an objective and patterned existence and research along these conceptual lines aims to discover “empirical knowledge with practical and regulative functions”.

The thrust of the idea of organisational development is progressive improvements in organisational functioning (Neher 1997: 326-327). Organisational functioning is related, in more ways than one, to communication efficiency. Therefore, functionalist views break down the functional components of organisational communication for assessment and evaluation, generally using criteria of functional effectiveness and efficacy.

Thus functionalist perspectives would help to identify functional aspects via communication load, networks (Van der Walt & Breet-van Niekerk 2007:338) and content, direction, channel and style (Miller 2003:17). The audit methods that are consistent with the functionalist approach would solicit 'objective' and quantifiable data amenable to statistical manipulation (Tompkins & Wanca-Thibault 2001: xxii). There is thus an implied harmony in the attendant ontological, epistemological, theoretical and methodological assumptions of functionalism (Du Plooy 2009: 204). There is also an overarching scientism that concerns the nature of reality and the manner of knowing it.

Scientific research requires the identification of variables of diverse description, such as number of messages sent or received, length of communications and number of interactions of such variables and their effects as statistically measured. Positivism assumes that there are systemic regularities, knowable facts and value-free knowledge which can be discovered through standard scientific research procedures (Frankfort-Nachmias & Nachmias 1992:23).

The scientific method in organisational communication research is typified by audits with a functionalist theoretical backdrop. Communication networks, modelling and computer simulations are instances of scientific techniques of understanding organisational communication realities in the positivist sense. For the most part, the communication satisfaction questionnaire is composed of closed questions as are many of the items on the ICA questionnaire and the

other extant scales in organisation communication evaluation. The method is simply quantification of variables of interest, description and prediction.

Thus the typical audit report is a readout on the state of organisational communication (Neher 1997: 328) giving statistical decisions of the functional effectiveness and efficiency of or satisfaction with organisational communication. However, most audits also include humanist data captured using interpretive methods which are based on interpretive perspectives.

4.4 SUMMARY

Planned evaluation is an important component of organisational management affecting all aspects of organisational functioning. One of these important aspects is organisational communication pervading all units and individuals in the system. This important component of organisational life needs to be assessed periodically by means of standard methods and procedures of communication evaluation. The practice called communication auditing or assessment is a systematic evaluation of an organisation's internal and external communication activities, communication needs, policies, etc to improve both communication effectiveness and communication satisfaction. Many writers have shown many benefits of organisational communication auditing which include chiefly diagnosis, measurement and control.

These three broad benefits can be exemplified in numerous ways. The diagnosis of communications can reveal strengths of organisational communication including staff satisfaction with communication policy and practice. The diagnosis can also reveal areas that have caused communication dissatisfaction and correctively aid in showing possibilities and directions for improvement. The audit can also demonstrate whether intervention has produced an impact in terms of enhancing staff communication satisfaction in diverse avenues of communication. The other variable, the control aspect, helps the organisation to

have power over communication maladies and to address them before they pervade and affect normal organisational functioning.

Communication areas that are often addressed by audits are information flow, message content, and communication climate. Information flow audits measure satisfaction with communication channels, feedback, direction and climate. The audit can unravel perceptual data about preferred organisational media as used by management and subordinates. It can also show data about job feedback as an important element of superior subordinate communication. It can further diagnose all directional communication and determine satisfaction levels. The accuracy of communication as well as its timeliness can further be gauged by communication audits. Audits can also address communication climate and issues of relational communication across all lines of communication as well as levels of interpersonal trust that are apt to impinge on communication satisfaction.

Although evaluative studies of communication can be impressive in terms of data quality and utility, they are nonetheless often impacted by a number of shortcomings. As this chapter shows, audits have in general been limited in scope, in addition to being psychometrically defective and confusingly diverse denying standardised ways and means. Another problem has been the issues associated with small samples that have made it difficult to produce a comprehensive communication picture. This condition has been compounded by the content validity problems of many audit instruments that essentially address limited communication behaviours.

Despite the existence of conceptual approaches to guide communication auditing, there has been no general theory of organisational communication auditing to better inform instrumentation. However continued conceptual and methodological sophistication can help to consolidate the practice of communication auditing and to place it in a more refined theoretical framework,

overcoming the often-mentioned charge that organisational communication is frequently atheoretical.

The next chapter takes up the important subject of SEM/CFA and demonstrates its application to communication instrumentation and modelling.

CHAPTER 5: STRUCTURAL EQUATION MODELLING METHODOLOGY

5.1 INTRODUCTION

In previous chapters, a broad conceptualisation of organisational communication satisfaction from a wide diversity of cross-disciplinary spectrums was discussed. The discussion included constructs that are allied to organisational satisfaction and widely known in the communication satisfaction literature. The conceptual and practical issues of the measurement of organisational communication satisfaction were also outlined. These included approaches to communication evaluation ranging from positivist to humanist orientations. Theoretical gaps were also identified in the sense that the general practice of the auditing of communication satisfaction has been atheoretical as no conceptual lenses have been put forward to look reflectively at the audit practice. This chapter addresses the question of the measurement of organisational communication satisfaction as related to the Ethiopian civil service context. After a review of current scales of communication satisfaction, the question is addressed in this chapter of which set of constructs can represent the Ethiopian conceptualisation of communication satisfaction, given the multiplicity of constructs available. Selection strategies to choose constructs for a hybrid measurement instrument of communication satisfaction are presented. SEM[2] methodology is used, which is an umbrella term for a set of statistical procedures that have functional relationships (Ullman 2006:35) involving exploratory and confirmatory factor analyses to develop and validate a model of organisational communication satisfaction in relation to the guiding theory presented in chapter 1.

The plan of this chapter is that, first the general idea of factor analysis is briefly discussed to prepare the conceptual ground for the pertinent tests. Then EFA is demonstrated in steps, followed by a demonstration of the CFA plan as

[2] SEM generally includes factor analysis (both exploratory and confirmatory), regression, path analysis, discriminant analysis and canonical correlation (Hox & Bechger 2012: 354), but is mainly used for theory generation and testing.

employed in instrument development and validation. The EFA-CFA section is followed by a description of the nonstatistical procedure and justification used to select constructs from existing scales to be used as inputs for the proposed hybrid measure of organisational communication satisfaction. The sampling design and the pilot plan are also included in the chapter plan. As indicated, a general understanding of factor analysis must come first.

5.2 FACTOR ANALYSIS

Factor analysis is a set of statistical procedures used to understand underlying constructs and data structure (DeCoster 1998:3). Factor analysis by convention includes exploratory and confirmatory factor analysis. A third subtype is principal components analysis, which is often confused with EFA, but which has a different character. While EFA is used as a structure detection procedure, the main purpose of principal components analysis is data reduction and summarisation (Henson & Roberts 2006:398). For this reason, it cannot be treated extensively in this study as the objective is not data reduction. Instead, attention will be focused on EFA first and then CFA.

5.2.1 Exploratory factor analysis

EFA, an older member of the SEM family of tests (Hoyle 2012:5), is a statistical tool used to identify latent factors from a large sample of items administered (Worthington & Whittaker, 2006: 807). According to Tryfos (2011:5), factor analysis is a method for investigating whether a number of variables of interest are linearly related to a smaller number of unobservable factors.

In the more detailed words of DeCoster (2011:4), the basic goals of EFA are to:

- determine the number of common factors influencing a set of measures

- show the strength of the relationship between each factor and each observed measure
- identify the nature of the constructs underlying responses in a specific content area
- determine what sets of items “hang together" in a questionnaire
- demonstrate the dimensionality of a measurement scale
- generate “factor scores" representing values of the underlying constructs for use in other analyses.

In simpler terms, in this study, EFA is used to see how the hypothesised dimensions or factors of organisational communication satisfaction are able to explain the empirical data gathered using the scale. Ultimately the purpose is to validate the proposed measure by testing whether the items assigned to each factor actually load on the factor a priori formed.

EFA is best conceptualised as a series of steps requiring attention and decision (Kieffer 1999:76). The EFA procedure followed to achieve this purpose is demonstrated in the following figure and described subsequently.

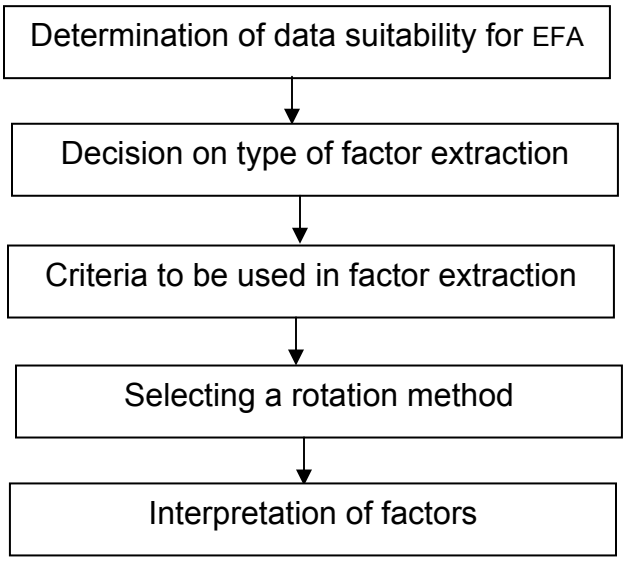


Figure 5.1: EFA protocol (Williams, Osman & Brown 2010: 13)

As shown, the data gathered must first be tested for suitability for EFA factorability using Kaiser-Meyer-Olkin and Barlett’s test. The Kaiser-Meyer-

Olkin measure of sampling adequacy is a measure employed to test the appropriateness of factor analysis for the data. Generally values of above .5 indicate that the factor analysis can proceed. Bartlett's test of sphericity, which is an index of correlation, must give a significance report (P <. 05) for factor analysis to proceed. If there is no sufficient correlation, there can be no common factor and no factor analysis can proceed.

Next a factor extraction method should be selected depending on the nature of the subject. According to Field (2005: 25), the researcher has a variety of factor extraction methods which are based on differing assumptions.

These include:

- unweighted least squares
- generalised least squares
- maximum likelihood
- principal axis factoring
- alpha factoring
- image factoring.

Choice of any particular method of extraction has to be justified. In this study principal axis factoring was chosen because for nonnormally distributed data it produces the best results and the most parsimonious solution (Costello & Osborne 2005:2).

Factor rotation is the next step and its purpose is to improve the interpretability of factors (Field 2005:3) by producing a clean structure, minimising low item loading and maximising high item loadings (Williams et al. 2010:3). SPSS provides rotated and unrotated rotation options. There are also two other categories: orthogonal (for uncorrelated factors) and oblique (for related facets) rotation strategies (DeCoster 2011).

After the rotation is done, interpretation follows. This enables the formation of a factor structure ready for the next step, i.e. CFA.

While in EFA factors are developed based on theory, eigenvalues or scree test (Burton & Mazerolle 2011: 33), this is easier said than done, for a number of reasons.

First the extraction-related difficulties must be noted. There are three strategies used in the extraction of factors, namely eigenvalues, scree plot and parallel analysis. The first two have particular limitations that can affect factor extraction accuracy (Zwick & Velicer 1986: 436).

Firstly eigenvalues, which account for the variance in the particular data, are easy to use but difficult to rely on. The use of the eigenvalues > one rule, also called Kaiser's criterion, may lead to error in extraction. This can affect not only how many dimensions are identified, but how they are interpreted as well (Patil, Singh, Mishra & Donavan 2008: 62). Both under- and over-extraction of factors are problems as they lead to incorrect factor structure, but worse, of course, is the extraction of trivial or nonsensical factors (Ledesma & Valero-Mora 2007: 2).

The scree plot, too, has received its own share of criticism (Zwick & Velicer 1986:430). It involves the diagrammatic representation of eigenvalues of factors or of variance explained, giving an indication of where extraction should stop as the graph levels off (Patil et al. 2008: 164).

But reading the scree plot is neither an easy nor an objective experience, as often different experts may give different interpretations of the scree test (Ledesma & Valero-Mora 2007: 3). There are also instances when the scree plot can give differing drops making the test confusing and hard to interpret (Ledesma & Valero-Mora 2007:3). Turner (1998: 560) has described the experience of reading a scree plot "more an art than a science".

To address the above limitations, psychometricians have resorted to a more accurate procedure called parallel analysis to determine the number of factors to extract. In this study, consistent with the finding of Glorfield (1995:343) that there is no rationale to use any strategy other than parallel analysis which is “almost always correct” (Hayton, Allen & Scarpello 2004:195) and for which there is a large body of evidence (Zwick & Velicer 1986: 435), parallel analysis was considerably important.

There are several procedures as well as a limited number of standalone software packages for conducting parallel analysis (MacParallel and Monte Carlo PCA for parallel analysis are packages recommended by Watkins (2006: 344-46)). However, one of the easiest procedures is the one addressed by Matsunaga (2010:102) conducted using freeware developed by Patil et al. (2008).

According to Matsunaga (2010:102), parallel analysis works as follows: Firstly, EFA is run using SPSS on data collected for factor extraction and the eigenvalues of the extracted factors are recorded. Secondly, parallel data are generated from the same original data as used in the EFA. However, the parallel analysis data variables are all random and factor analysis is conducted on the parallel analysis data and eigenvalues recorded. Then the averages of the eigenvalues of the parallel analysis are compared with those of conventional SPSS output. A factor is retained only if the SPSS eigenvalue is greater than the corresponding parallel analysis value.

In this study, parallel analysis was conducted using the freeware of Patil et al. (2008), alongside eigenvalues and the scree plot, as the latest and most important procedure in determining and extracting the number of factors that constitute organisational communication satisfaction. The factor structure that emerged is used as input for the CFA procedure.

5.2.2 Confirmatory factor analysis

CFA is a special form of SEM (Ullman 2006:35) used in hypotheses testing and construct refinement. Many writers (Stevens 2009:1; Anglim 2007:3; Chin 1998:1; Hoe 2008: 76) argue that the use of CFA can greatly enhance the psychometric quality of a measure. According to Noar (2009: 633), CFA can lend support for the psychometric quality of a scale across samples and over time, compare simultaneously differing alternative models and with accuracy help select the model best fitting the dataset. It can also provide added evidence of the dimensionality of a measure and the item-construct relationships.

DeCoster (1998:5) points out additional advantages of CFA, namely testing relationships between constructs, examining correlations between factors and evaluating the convergent and divergent validity of a scale. Additionally, say Schumacker and Lomax (2004: 7), measurement error is explicitly addressed, making sophisticated theoretical modelling possible and CFA-SEM the most preferred strategy. For this reason, Stephenson, Holbert and Zimmerman (2006: 166) contend that CFA needs to embrace communication to allow our conceptualisation and measurement as in communication auditing to become more sophisticated.

CFA assumes that the factor structure of a measure has already been identified and what is left is “to evaluate or confirm the extent to which the researcher’s measurement model is replicated in the sample data” (Worthington & Whittaker 2006: 808). The general validation procedure is to conduct EFA before trying a CFA. A key importance of CFA is the evidence that comes from the fit between the data and the model demonstrating a degree of construct validity. In this study, the factor structure produced by EFA is used as input for instrument validation and model fitting using the following standard CFA procedure.

5.2.3 Confirmatory factor analysis procedure

Whilst the number of CFA procedure steps may vary, this study uses a five-step model. These steps are in the following sequence:

5.2.3.1 Model specification

As defined by Wang (1998: 65), a model is “a statistical or visual representation about the relationships among latent and observed variables”.

As a rule, causal modelling starts with a specification of a model for estimation. The specification of a model is important in investigations of multivariate relationships as presented in path models (Schumacker & Lomax 2004: 153). The specification is done based on an appropriate communication theory and empirical literature. The two models that can be specified at this stage are the structural model, which relates to interrelationships among constructs in the study, and a measurement model, which plots relationships among measurable variables and the latent constructs they measure. The models in general represent hypothesised relationships.

5.2.3.2 Model identification

The second step in the SEM procedure is the identification of a model. By identification the suggestion is that “there is at least one unique solution for each parameter estimate in a SEM model” (UT 2011: 4). The identification levels “depend on the amount of information in the sample variance covariance matrix S necessary for uniquely estimating the parameter of the model” (Schumacker & Lomax 2004: 64).

For identification to be possible “the number of independent variables must be less than or equal to the distinct values that describe relationships among

variables and constructs" (Baloglu 1999: 6). A common procedure to deal with identification of models is the use of the Wald rank test, but analysing "sample covariance matrix S as well as the estimated population matrix ∑" are also possible strategies (Schumacker & Lomax 2004: 66). Amos has an inbuilt system to provide automatic identification scores and statements.

5.2.3.3 Model estimation

Model estimation is a process of finding values for the unknown (Suhr 2009:3). SEM is a statistical method that includes the estimation of models with regressions among continuous latent variables or factors.

The estimation pertains to three types of relationships in one set of multivariate regression equations: the relationships among factors, the relationships among observed variables, and the relationships between factors and observed variables that are not factor indicators.

5.2.3.4 Model testing

The purpose of the tests is to determine whether or to what extent the data fit the model in question. A particular model may be said to be fit depending on the degree "that its covariance matrix is similar to that of a sample covariance matrix" (Baloglu 1999:11). Parameters are investigated for magnitude and direction and the investigation may be done using one or more of the goodness-of-fit tests available which make a number of differing assumptions (Iacobucci 2010:90-91; Hooper, Coughlan & Mullen 2008:58).

Fit indices may be incremental, absolute, or predictive (Kline 2005: 25). Absolute fit indices are able to decide the fitness between sample data and a hypothesised model (McDonald & Ho 2002: 69). These indices are absolute indication in the sense that no comparison among models is made, but reliance is made on a sole model.

On the other hand, incremental fit indices provide measures of whether "improvement in a model is fit to the data by comparing a specific structural equation model to a baseline structural equation model" (Worthington & Whittaker 2006: 828). For their part, predictive fit indices measure the fitness of a model to a subpopulation sample. According to Hooper et al. (2008: 53) as well as Worthington and Whittaker (2006: 827), the following are useful fit tests:

- Normed fit indices
- Incremental fit indices
- Chi-square/df ratio
- Goodness of fit index
- Tucker-Lewis index
- Incremental fit index

5.2.3.5 Model respecification

After evaluation, sometimes a model has to be improved to fit the data or additional data may have to be collected to improve model fit (Suhr 2009: 4). There are tests available to improve model fit following changes in parameters or inclusion or exclusion of parameters. But caution is needed because "the model/modification processes appear to be sensitive to characteristics of the sample at hand and generalisation beyond the sample is highly suspect unless sample size is extremely high" (Hoyle 1995: 34). The entire process of SEM is guided by the framework of Ghasemi (2009:1034) involving detailed attention to every step.

5.3 PRESELECTION OF CONSTRUCTS FOR EFA PROCEDURE

The number of constructs of organisational communication satisfaction is considerable. However, through careful consideration the most relevant factors were selected before subjecting them to exploratory factor analysis.

5.3.1 Identification of constructs

Based on previous research, theory and psychometric judgement, this study first identifies relevant communication satisfaction constructs from existing scales of organisational communication satisfaction. However, it was necessary to scrutinise all of these for appropriateness and relevance to the collectivist context, before six constructs were finally preselected for inclusion in a pilot instrument. For instance, it was felt that the construct of timeliness[3] of information, which could be a very important dimension in other cultures, would be less important to the Ethiopian civil servant than relational trust based on reflection on the culture of the Ethiopian civil service. Switzer, Wisniewski, Belle, Dew and Schultz (1999:400) state that in selecting, developing and assessing measurement instruments, attention must be paid to the historical and cultural context of a study population. But this is not enough. Therefore the organisational communication measurement literature was consulted to identify weaknesses and strengths of the existing instruments and their factor structure (Greenbaum et al. 1987; Rubin et al. 1994). An examination of the psychometric literature (Switzer et al. 1999:405-6) provided guidance on the need for and construction of a hybrid measure of organisational communication satisfaction for the Ethiopian context.

Therefore before the EFA plan could be performed, the psychometric hybridisation guidance of Switzer et al. (1999: 406) was followed to select, modify and provide constructs for the proposed hybrid measure. The procedure they suggest is as follows:

[3] There are two time orientations in chronemics, which is the study of time. In the polychromic time system strict scheduling is not the norm and arrangements tend to be fluid; all that matters is relationship quality (Cohen 1997: 34). In monochromic cultures such as America's, "the schedule is sacred" was anchored in the Industrial Revolution when "factory life required the labor force to be on hand and in place at an appointed hour" (Guerrero et al. 1999: 238). Information has clearly a chronomic dimension related to culture.

- Describe the original instruments.
- Show shortcomings in the present scales that justified the development of a hybrid instrument.
- Indicate procedure in item/construct selection or creation.
- Present changes made to original items/constructs or response format.
- Show expected functional difference of the hybrid scale from present instruments.

The above five-step procedure as adapted for this study is presented next.

5.3.2 Description of the original communication satisfaction scales

It is necessary to first give a picture of the three selected relevant measures, namely communication satisfaction questionnaire, the International Communication Association audit and the organisational communication development audit questionnaire. Downs, DeWine and Greenbaum (1994:59) note that "there is a surprisingly large number of well-developed organisational communication instruments". This multiplicity is nonetheless a source of challenges. Firstly, the instruments have differing focus, and secondly, as reported by the research task force of the Organisational Communication Division of the International Communication Association (ICA) (Greenbaum et al. 1987:132), many of these measures are boundary-spanning and a complete list is impossible. Nonetheless the criteria of availability, content and context relevance and psychometric quality were used in this study to select the three instruments, which are described individually below.

5.3.2.1 Communication satisfaction questionnaire

The communication satisfaction questionnaire as originally developed by Downs and Hazen (1977) is a 51-item scale.

The dimensional breakdown shows that the scale has the dimensions of:

- communication climate
- supervisory communication
- organisational integration
- media quality
- co-worker communication
- corporate information
- personal feedback
- subordinate communication dimensions.

Each factor has five items scorable on a seven-point Likert scale ranging from “very satisfied” to “very dissatisfied”. The scale also has outcome variables, namely job satisfaction and productivity. There are also five items asking for demographic information. Different studies have employed modified forms of the questionnaire with subscales removed, changed or items reworded to suit changed organisational contexts, as indicated in chapter 1 of this study.

5.3.2.2 The International Communication Association audit

The International Communication Association audit is a team-developed communication assessment tool of the International Communication Association. The scale has five data collection tools - interview, communication, diary, communication experience as well as communication network analysis. The presence of diverse tools has made the scale the longest communication measure taking the longest time to complete. The dimensions of this measure include:

- receiving information from others
- sending information to others
- following up on information sent
- sources of information

- timeliness of information received from key sources
- organisational communication relationships
- organisational outcomes
- channels of information.

The full instrument as developed by the International Communication Association has 13 dimensions in 8 scales with 134 items, 122 of which are scored on a five-point Likert scale. The instrument also asks open-ended questions in the form of critical incidents, communication networks and experience reports.

The scale has a needs approach to communication satisfaction evaluation in that respondents are asked to indicate the amount of information they need and the amount of information actually received.

5.3.2.4 Organisational communication development audit questionnaire

Originally developed by Wiio (1978) in Finland, the scale assesses links between communication and outcome variables (Rubin et al. 1994: 61).

The 12 dimensions measured by 76 items are:

- overall communication satisfaction
- amount of information received from different sources - how
- amount of information received from different sources - ideal
- amount of information received about specific job items – now
- amount of information received about specific job items - ideal
- areas of communication that need improvement
- job satisfaction
- availability of computer information system
- allocation of time in a working day
- respondents' general communication behaviour
- organisation-specific questions
- information-seeking patterns.

The format of this questionnaire is somewhat different from other scales measuring communication. It has been in use over long periods since the 1970s during which it has been subjected to investigation and modification.

5.4 PSYCHOMETRIC INADEQUACIES OF THE THREE MEASURES

A number of studies have shown important psychometric limitations of the instruments. In reality, there is no such thing as perfect scale given the complexities of the occupational setting and the contextual nature of communication. Each instrument has drawbacks. The critique begins with an assessment of the otherwise popular communication satisfaction questionnaire, which is selected, among other reasons, because it directly relates to communication satisfaction.

Hecht (1978c: 363), after reviewing various communication measures, reported that the communication satisfaction questionnaire was thorough. However, later researchers (Zwijze-Koning & De Jong 2007: 261) concluded that the measure was inexhaustive, and a call was made for additional factors based on a Dutch study. They added that “there are several issues that the communication satisfaction questionnaire does not deal with but which seem to influence significantly employees’ overall level of communication satisfaction” (Zwijze-Koning & De Jong 2007: 279). Critical of the content validity of the communication satisfaction questionnaire, they caution that using the measure in its present form may lead to “a potential danger of misdiagnosis” (Zwijze-Koning & De Jong 2007: 280).

Clampitt and Girard (1987:28) point to the need for revising the factor structure of the questionnaire. They indicate that more appropriate would be a six-factor organisational communication satisfaction questionnaire, but this finding was not based on a big study. Still other researchers continue to criticise the instrument.

Thus, despite the praises it has received, the communication satisfaction questionnaire “is not without limitations” (Gray & Laidlaw 2004: 444), justifying ongoing psychometric modification in relation to changing organisational cultures and contexts. Deconinck et al. (2008: 145-148) demonstrate that the factor structure of the questionnaire is not stable across organisations. They show that some factors of the measure can be collapsed, indicating the construct validity problems of the measure. Crino and White (1981: 436) reported earlier that some dimensions of communication satisfaction showed high correlation, indicating that they may not be separate constructs.

Downs (1988: 74) made the recommendation that an important psychometric step would be “developing questions that are specific to a particular organisation and adding them to the communication satisfaction audit”. This may be a relevant point to the present study.

5.4.1 Steps in construct selection and creation to address inadequacies

In agreement with the call that the questionnaire “on satisfaction in communication should continue to be refined” (Crino & White 1981: 835), the present study proposed to draw constructs from the communication satisfaction instrument as a foundation for a hybrid measure. This measure would represent dimensions from three different instruments, namely the communication satisfaction questionnaire, the organisational communication audit questionnaire and the International Communication Association audit.

The decision to include factors in the proposed hybrid measure was made based on the empirical literature as well as psychometric guidance available (Stanton, Sinar, Balzer & Smith 2002: 169).

According to Stanton et al. (2002: 173) scale developers may use both statistical and judgemental procedures for factor deletion and factor retention. Psychometrically, both orthogonal and oblique factor rotation methods may be employed.

Step-by-step, the following were considered in the hybridisation effort:

- Modifiability of the scale for the study population
- Psychometric excellence of the scale
- Expected burden on respondents (length of scale and number of items and dimensions)
- Practical issues (simplicity of scoring procedure)

5.4.2 Changes made to original items/constructs or response format

In a manner hybridisation would require, modifications were made to items and constructs taken from the selected scales. The construct of subordinate communication was dropped judgementally in view of considerations of relevance to the hybrid measure developed to gauge communication satisfaction of subordinates. The others, namely media quality, organisational integration and corporate information, were also dropped. The reason was that in earlier studies (Deconinck et al. 2008: 146-148) media quality merged with other communication facets, as did organisational integration and corporate information. Also Gray and Laidlaw (2004: 435-440) found that the factors were highly correlated and thus not independent dimensions.

But the dimension of job satisfaction from the organisational communication development audit questionnaire was considered pivotally relevant. There is also a preponderance of empirical evidence essentially linking communication satisfaction and job satisfaction, although Gregson (1990: 39) demonstrated that while the link between communication and job satisfaction is essential, the two constructs are uncorrelated. This was not replicated by Varona (2002), who found that Guatemalan conceptualisations of communication satisfaction included job dimensions, which may have relevance to the cultural context of Ethiopia.

The job satisfaction dimension is presented as an independent construct in the organisational communication development audit questionnaire, but in others it is operationalised through single communication satisfaction questionnaire items, which deserve to be criticised for insufficiency. Both questionnaires are critiqued. The job satisfaction dimension in the organisational communication development audit questionnaire asks yes/no questions and this cannot reveal much about the possible range of responses. However, although the response format is defective in the psychometric sense, it nevertheless is better than the single job satisfaction item presented in the communication satisfaction questionnaire. Changes have been made to this particular job dimension in the sense that the relevant items were taken from the organisational communication development audit questionnaire and modified to suit the seven-point Likert scale. One item on social benefits was dropped because it lacks clarity and is redundant in the sense that the dimension of horizontal communication from the communication satisfaction questionnaire does the job much better.

The other dimensions of the organisational communication development audit questionnaire are conceptually redundant and were therefore excluded. There is too much focus on information satisfaction, ignoring the relational side, believed to be more important to the Ethiopian organisational-cultural context.

The dimension of relational trust is of considerable significance but is mentioned in single items in the three communication scales except in the International Communication Association Audit, where it occurs with a relational label containing numerous items. Trust in communication is so important that it has been related to both quality and quantity of communication and implicitly to communication satisfaction (Overwalle, Meylighen & Heath 2011: 1). Trust has been linked to positive outcomes such as satisfaction, and today it has resurfaced as a research subject as many organisations continue to experience upheavals and disturbing changes more than ever (Thomas et al. 2009: 288).

Balogun and Mutahaba (1999: 190) have indicated that the idea of bureaucracy connotes secrecy and concentration of power, and thus in such a climate trust is likely to be a major issue. Even in more stable organisations lack of trust has been found to have negative communication implications (Roberts & O' Reilly 1974: 211), including anxiety. Therefore, it was found necessary to have a trust dimension as an ingredient of the hybrid communication satisfaction scale for the Ethiopian civil service.

Thus five items forming the dimension of trust were selected based on their express reference to trust in the relational sense. The response format was also modified to suit the communication satisfaction questionnaire style, and presented in the form of a seven-point Likert scale.

Using the psychometric guidance and empirical literature, the following were finally selected as constitutive constructs:

- Communication climate
- Supervisory communication
- Co-worker communication
- Personal feedback dimensions from the communication satisfaction questionnaire

Two additional dimensions, i.e. job satisfaction from the organisational communication development audit questionnaire and relational trust from the International Communication Association Audit, were included in the hybrid organisational communication satisfaction measure. This was done before they were subjected to EFA, which would decide whether the constructs were reproduced in the empirical observations.

5.4.3 Expected functional difference of the proposed hybrid measure

The function of scales is affected by a number of considerations, including most notably relevance, validity and reliability. In view of the relationship between communication and culture, the hybrid measure was expected to tap more reliably the perceptions of Ethiopian civil servants about their communication experiences in their occupational settings.

The proposed scale has constructs more relevant to Ethiopian conceptualisation of communication satisfaction because it has a clear focus on relationships and trust. These are more important in collectivist societies like Ethiopia's (Hofstede 2001). DeCoster (2011: 1) argues that hybridising measures "is perfectly legitimate". With reference to biological cross-fertilization it is claimed that "hybrids have a hybrid vigor" (Pardee 2008:8), suggesting possession of better qualities than their parents. In the same manner, the hybrid measure of communication satisfaction was expected to be better suited to the practical realities and conceptual contexts of the Addis Ababa civil service. The proposed hybrid measure also represents a response to "the need for shorter, psychometrically sound scales in organisational research" (Stanton et al. 2002: 168). As shown in Table 5.1 it is shorter than the original scales from which it was developed.

Table 5.1: Proposed hybrid measure of organisational communication satisfaction

Organisational Communication Satisfaction Questionnaire for Civil Servants

Statement	Very dissatisfied	Dissatisfied	Slightly dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Satisfied	Very satisfied
1. Extent to which my supervisor listens and pays attention to me.	1	2	3	4	5	6	7
2. Extent to which information about how my job performance compares with that of others.	1	2	3	4	5	6	7
3. Extent to which the social information communication is active in my workplace.	1	2	3	4	5	6	7
4. Extent to which my workplace communication motivates me to meet its goals.	1	2	3	4	5	6	7
5. Extent to which I trust my colleagues.	1	2	3	4	5	6	7
6. Extent to which I am satisfied with my pay.	1	2	3	4	5	6	7
7. Extent to which my supervisor offers guidance for solving job-related problems.	1	2	3	4	5	6	7
8. Extent to which I am given information about how I am being judged.	1	2	3	4	5	6	7

9. Extent to which communication practices are flexible to suit organisational emergencies.	1	2	3	4	5	6	7
10. Extent to which employees in this organisation have great ability as communicators.	1	2	3	4	5	6	7
11. Extent to which I trust my supervisor.	1	2	3	4	5	6	7
12. Extent to which I have chances for promotion and advancement.	1	2	3	4	5	6	7
13. Extent to which communication with other employees at my level is accurate and free flowing.	1	2	3	4	5	6	7
14. Extent to which I receive recognition of my efforts.	1	2	3	4	5	6	7
15. Extent to which my supervisor provides reliable information to me.	1	2	3	4	5	6	7
16. Extent to which communication in the organisation makes me identify with it or feel a vital part of it.	1	2	3	4	5	6	7
17. Extent to which my supervisor is honest with me.	1	2	3	4	5	6	7
18. Extent to which I participate in decisions concerning my work.	1	2	3	4	5	6	7

19. Extent to which informal communication is active and accurate.	1	2	3	4	5	6	7
20. Extent to which I receive reports on how problems in my job are being handled.	1	2	3	4	5	6	7
21. Extent to which my supervisor is open to ideas.	1	2	3	4	5	6	7
22. Extent to which I receive in time the information needed to do my job.	1	2	3	4	5	6	7
23. Extent to which I trust top management.	1	2	3	4	5	6	7
24. Extent to which I feel secure about my job.	1	2	3	4	5	6	7
25. Extent to which my work group is well-matched/compatible.	1	2	3	4	5	6	7
26. Extent to which my managers/supervisors understand the problems faced by staff.	1	2	3	4	5	6	7
27. Extent to which the amount of supervision given to me is right.	1	2	3	4	5	6	7
28. Extent to which conflicts are handled appropriately through proper communication channels.	1	2	3	4	5	6	7
29. Extent to which I feel free to disagree with my supervisor.	1	2	3	4	5	6	7
30. Extent to which I like my job in my workplace.	1	2	3	4	5	6	7

Demographic Items

31. What is your age? _____
32. What is your sex? M or F (circle answer).
33. How long have you been in your current position? _____
34. How long have you worked for the organisation? _____
35. Please indicate which best indicates your formal education. A. Did not finish high school, B. High school, C. Completed some college, D. College degree, E. MA/MS or above

The new scale was also expected to prove not only more contextually relevant, but short enough to prevent high rates of non-response and to motivate more voluntary participation in scale completion. This brevity represents an improvement on, among others, the International Communication Association audit. DeWine, James and Walence (1985: 6) have indicated that the latter is too long and too complicated to produce requisite data and audited organisations have often complained this.

However, the proposed psychometric structure was only a hypothesis which may or may not have held until hypothesis testing was conducted. Thus until EFA was conducted, the proposed instrument with the dimensions of horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction would be tentative. Therefore an EFA was done to determine whether these dimensions were reproduced in the actual data, or whether the items loaded on the factors identified. In others the dimensionality issue would be confirmed or disconfirmed by the EFA and CFA employed. The hypotheses below capture the range of dimensional possibilities.

5.5 HYPOTHESES

For the study the following hypotheses using the hybrid measure were formulated:

i) Organisational communication satisfaction responses can be explained by six factors, namely horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction.

ii) Organisational communication satisfaction is a measure of one general satisfaction factor rather than six dimensions.

iii) Organisational communication satisfaction is a two-dimensional construct.

iv) Each item-pair measure has a nonzero loading on the communication satisfaction dimension that it was designed to measure and a zero loading on all other dimensions.
v) The communication satisfaction dimensions consistent with the theory are correlated.
vi) Errors associated with each measure are uncorrelated.

5.6 SAMPLE SELECTION

It is important for a researcher to describe, explain, justify and present a sampling plan (Cochran 1997:9), including features of the sample to be taken.

In this quantitative study, a sample is understood as a subset of a parent population sharing typical features of the population of interest and selected using probabilistic methods (Lohr 2010: 3). The process of selecting a sample is contingent upon a number of important considerations and requires an appropriate plan or strategy (Babbie 1992:189). In a quantitative study, the purpose is to draw inferences from a sub-population that is truly representative of the universe from which samples are taken. Probabilistic sampling ensures that samples are drawn with randomness that permits each unit an equal chance of selection (Lohr 2010:25).

A typical quantitative study involves 1) selecting a target population, 2) selecting the population accessible, 3) stating criteria for selection, 4) working out a sampling plan and 5) drawing the actual study sample (Landreneau & Creek 2011:2). In this study, the target population or the theoretical population were all public servants in the city government of Addis Ababa, and the accessible population were those that could actually be selected from the target public service units of the sub-cities of the city government of Addis Ababa. Criteria were set for the selection of public servants, followed by a sampling plan design and actual access to the study sample designated for participation.

The sampling frame, which is the registry from which a sample is drawn, (Särndal, Swensson & Wretman 2003: 10) has the following qualities:

- All units are in some logical arrangement.
- All units are actually accessible.
- All units are available in the frame.
- Every unit is available only once and does not reappear elsewhere.
- The population of interest does not include unrelated elements.

The frame addresses the concerns of Kish (1995: 5) that duplicate entries, foreign elements as well as missing elements can stand in the way of a truly random sample.

However, there are additional issues to be raised in sampling for SEM for scale development.

Bentler (1995: 32) has argued that SEM-CFA requires large sample sizes consistent with the statistical assumptions of the modelling tool. There have been numerous sample size recommendations for SEM projects. Recommendations have included minimum sample sizes of between 100 and 200 subjects; others have suggested that sizes less than 200 would be damagingly inadequate (Kline 2005: 39). Noar (2009: 626) counsels that a scale developer must take a sample that corresponds on core features of the relevant population, suggesting the need for some random sampling. But others (Devellis 1991: 28) have indicated that random sampling is more relevant for population-based studies than for scale development projects and in fact suggest that convenience samples may do. But the dangers in developing a measure using samples that are markedly different from a population of psychometric relevance are clear. Serious validity issues may eventually surface when the developed instrument fails to measure relevant dimensions for appropriate groups.

McQuitty (2004: 179) suggests that it is important to set the minimum sample size that yields a desired level of statistical power. Worthington and Whittaker (2006: 817) recommend a minimum size of 300 subjects. The present study therefore took a preset sample of 625 public servants to ensure higher statistical confidence.

The sampling design was based on recommendations of Babbie (1992:212) and Black (2004:65) about the need for combining sampling methods as may be justified. In the same vein, this study used a combination of probability sampling methods that included cluster sampling, simple random sampling and systematic random sampling.

5.6.1 Cluster sampling

According to Metagora (2011: 1), cluster sampling is a method of sampling in which the whole universe of interest is divided or subdivided into groups, or clusters, and a random sample of these clusters or groups is chosen. Cluster sampling can be done in one (one-step cluster sampling), two (two-stage cluster sampling), or more (multistage cluster sampling) stages (Ahmed 2009:3). The type chosen for this study was two-stage cluster sampling, which involves the selection of primary sampling units (clusters of sub-city civil service administrations) and secondary sampling units (individual civil servants). The primary sampling units were selected using systematic random sampling while the secondary sampling units were chosen using simple random sampling. According to Black (2004: 65), the most typical type of systematic random sampling is an equal probability procedure in which every K^{th} element in the sample frame is picked, where K, the sampling interval, is calculated as $K = N/n$ where n is the sample size, and N is the population size. Another related strategy, simple random sampling, requires a list, a definition or a frame to ensure probability selection.

In this study, the selection of sub-cities was based on geographic definition involving clusters, followed by the development of a sampling frame as presented below.

Sub-cities of Addis Ababa (arranged alphabetically):

1. Addis Ketema
2. Akaki
3. Arada
4. Bole
5. Gulele
6. Kirkos
7. Kolfe Keranyo
8. Lideta
9. Nefas Silk-Lafto
10. Yeka

The next step was to decide, using systematic sampling, that 50% of the ten sub-cities would be selected for the EFA (Main Study One) and the remaining 50% for the CFA (Main Study Two).

5.6.2 Sampling civil servants

Statisticians have provided ways of modifying cluster sampling to suit different uses and conditions. According to UNFCCC/CCNUCC (2012:5), one possible modification involves drawing a sample of secondary units within the individual sampled clusters rather than addressing every single unit of sample cluster individually. There are many ways to modify cluster sampling for more complex sampling situations. The technique of picking a sample from drawn clusters is called sub-sampling. Sub-sampling in this study involved the selection of civil servants in the sampled clusters of sub-cities. The following steps were taken:

The first step was deciding how many civil servants to pick from each sub-city to have an overall sample of a predetermined number of 650. The total usable sample was projected to be in excess of the minimum sample of 500 which a structural equation modelling study would require. Since the purpose of the study was not to produce survey data, the requirements of probability proportionate to size did not apply. Also, this sampling technique is most recommended when cluster samples vary considerably (McGinn 2011:1). The Addis Ababa sub-city clusters tend to be proportionate in terms of the size of populations of interest.

However, consistently across the clusters simple random sampling was employed to select 65 civil servants in each sub-city administration. The random sampling would ensure that each civil servant in the frame had an equal chance of being selected using the following procedure (Galloway 1997:3):

i) The sampling frame was obtained from the sub-city.
ii) Each case was assigned a unique number.
iii) A decision was made on the required sample.
iv) The number selection was based on a table of random numbers.

The design of the sampling helped to enhance response rates and data quality management (Byrne 2001: 287-90: Ashton 2006:1) as performed at every stage of the separate studies.

5.7 ETHICAL CONSIDERATIONS

Throughout the study, the question of ethics was addressed based on Unisa's Policy on Research Ethics (Unisa 2007: 10-15). Every effort was made to protect the integrity and anonymity of the data as well as the security of the local government workers who participated in the study. The key ethical values that were adhered to were:

- respect for and protection of participants' rights
- informed and noncoerced consent
- justice, fairness and objectivity
- integrity, transparency and accountability
- risk minimisation and nonexploitation.

The voluntary nature of the participation was highlighted early in the covering letter in block letters. Respondents were also assured that if they changed their mind they could withdraw from the research or even ask that their questionnaire be scrapped (Kassim 2001:68). Possible respondent concerns such as "who will know how I answered these questions?" were addressed through emphatic communication (Vaux & Briggs 2012: 190). The subject of voluntary consent was further addressed by informing the participants that permission for collecting data from the organisation was obtained from the management, that there was no penalty for not participating and that the employer would have no access to data supplied by the participants. As per Unisa's ethical guidelines, no monetary or other offers were made. Indeed, the effect of such an offer to a respondent may be to artificially inflate satisfaction scores, affecting the entire research project and the validity of its claims. On the other hand, as Roth and BeVier (1998: 103) have shown, it also increases response rates from those especially transaction-oriented participants.

In this study, the dignity of the respondent was protected through appropriate, polite and professional communication.

There was no patronising involved (Leong & Austin 2006:115; Alderson 2012:2); after all, as Dillman (2000:145) has commented, the researcher is asking a favour of the respondent. The important consideration of potential for harm was considered, but assessed to be minimal. Because of the theoretical nature of the study, it was felt that there would be little emotional or psychological harm inflicted upon participants.

The ethical requirement of informed consent was addressed in the covering letter, which explained the purpose of the research and the time it would take on average to complete the questionnaire. This ensured that respondents had enough relevant information before volunteering to answer the items on the questionnaire.

In brief, all the cardinal ethical concerns in research: voluntary participation, informed consent, confidentiality and anonymity and the potential for harm, were duly considered and addressed (Polonsky 1998:1230).

5.8 PILOT STUDY

Once the hybrid scale was developed using theory, previous research and judgement, it was necessary to pilot test it to determine aspects of the measure's technical soundness. Rattray and Jones (2007: 237; McDaniel & Gates 1995: 301) state that pilot testing is essential in instrument development. Van Teijlingen and Hundley (2001: 2) explain that a pilot study can have a precautionary role in pointing out methodological flaws that can compromise the quality and usefulness of the main study and therefore must be meticulously done and reported (Simon 2011:160).

In addition to the advance warning about relevant issues in the research that should not be overlooked, Van Teijlingen and Hundley (2001:2) say that a pilot study can have several additional advantages, including development and validation of research tools, confirmation of the effectuality of a sampling frame and technique, collection of preliminary data and evaluation of data analysis techniques.

A common practice in pretests is that a nonprobability sample is selected (Zikmund 2000:59). However, although a pilot study is typically performed on a purposive sample (Lewis, Templeton & Bryd 2005: 390), the sample taken must

share characteristics of the target population. Since a typical pretest is a small version of the main study, samples are naturally small. There is no agreement in the literature on how small the pilot sample should be, but there are varied size recommendations (e.g. 42, 60...) by different writers (Barrett & Kline 1981:28; DeWinter, Dodou & Wieringa 2009:150). The pilot study for this study took a sample of 64 civil servants from Yeka sub-city, one of the target sub-cities of Addis Ababa, which has typical features of the Addis Ababa city civil service population. The piloted sub-city administration also shares similar organisational structure, policy, occupational variety and demographic features, which would reduce sampling bias.

In line with the recommendations of Peat, Mellis, Williams and Xuan (2002: 25) as well as Dillman (2000: 156), the pilot study was done in the following manner: Firstly, the pilot subjects were administered the scale in exactly the same manner as other respondents would in the main study. To help in any later refinement of the scale, respondents were asked to give opinions on the wording and accessibility of the items. The time it took participants to complete the scale was also recorded and the readability of the scale was checked. Finally, response rate and missing data were checked.

The pilot study also involved asking knowledgeable persons about the instrument as per the recommendations of Dillman (2000: 156). An expert sample of three, including the promoters, was involved in commenting on the instrument under development and validation. The first was a professor of organisational communication centrally involved in quantitative aspects in organisational communication. The second was a psychologist with graduate experience in measurement and evaluation and an undergraduate minor in Mathematics. The third expert was a professor of social psychology with an interest in measurement as a subfield of psychology.

Finally, the pilot study was based on the general role in quantitative research that pilot “data are not used to test a hypothesis or included with data from the actual study when the results are reported” (Peat et al. 2002: 45).

5.9 SUMMARY

This chapter described and illustrated the application of SEM to instrument development and validation, especially the use first of exploratory and then confirmatory aspects of SEM. It was shown that the relationships between the latent constructs of a measure as well as observed variables can be dealt with using CFA. The multiple hypotheses involving multidimensional relations could be addressed using CFA. As demonstrated, a major advantage of SEM is to psychometrically diagnose an instrument and show its merits and demerits. The chapter also indicated the issue of measurement error and how SEM is equipped to estimate more accurately and address errors which more traditional statistical means are less well-equipped to handle.

A hybrid measurement instrument of organisational communication satisfaction was developed using constructs from existing relevant instruments, which are linked directly to the construct of communication satisfaction. These constructs were expected to tap items that were judged to be central to the corresponding construct. However, the proposed instrument had to be psychometrically tested to find out if indeed the items loaded on the factors as predicted.

The next chapter presents the findings of the study based on the exploratory and confirmatory tests under the rubric of SEM made to test the validity of the proposed factor structure of the hybrid instrument under development. This same chapter begins with a report of the pilot test.

CHAPTER 6: RESULTS OF THE STUDY

6.1 INTRODUCTION

The previous chapter showed the relevance of structural equation modelling and, more particularly, exploratory and confirmatory tests and the relevant steps taken to develop a hybrid measure of organisational communication satisfaction. It was demonstrated that, using nonstatistical procedures, constructs would be taken from three different instruments and be used to develop a hybrid measure to be further tested using psychometric software, namely SPSS and Amos Graphics. A total of three interrelated studies were conducted in the development and validation of the hybrid measure of organisational communication satisfaction.

This chapter presents and contextually discusses the findings of these three sequential studies: Pilot, Main Study One (exploratory factor analysis) and Main Study Two (confirmatory factor analysis). First, as is natural, the pilot study is presented, followed by the outcome of the exploratory factor analysis (Main Study One). The EFA report, based on the original 30-item organisational communication satisfaction scale, includes comparisons of the eigenvalues approach, the scree plot as well as the parallel analysis, which is used as the most accurate EFA strategy. After the main EFA, i.e. Main Study One, the six constructs hypothesised as explaining organisational communication satisfaction in the civil service were not recovered. Instead two factors emerged, encompassing 17 items, following the elimination of 13 predictors based on factor extraction rules. The two-factor solution with 17 indicators that emerged from the last EFA out of a series of tests was used as input for a confirmatory factor analysis (Main Study Two) using Amos 20 as a preferred SEM/CFA package. It is noted that the pilot gave an important indication of the factor solution that was to eventually emerge.

6.1.1 Notes on pilot return rate

In this particular pilot, 50 completed copies were returned out of a total of 64 questionnaires distributed. This represents a completion of 78% which is quite satisfactory, given return rates of 5 to 54% reported in other studies (Holbrook, Krosnick & Pfent 2007: 77; Rea & Parker 1997: 32)

The high response rate does not necessarily reflect the eagerness of study participants alone, but is a combination of their willingness and rapport established by the research assistants. Studies show that when employees perceive they may be identified even when pledges of anonymity are offered, they may project open unwillingness to cooperate or supply untrustworthy data, or provide "partial responses" (Roberson & Sundstorm, 1990: 356). The risks associated with low response rates include the possibility that those who refuse to participate may constitute a vitally different category, such as those extremely dissatisfied. The result is that the data would not be representative.

Although the response rate in the pilot was acceptable, the lesson for the main study was that strategies must be employed to enhance return rates including:

- serious pre-contact
- multiple follow-ups as may be necessary
- timing
- use of contacts in the organisation.

An added factor (which helped to raise return rates in the main study) was an improvement in the design of the questionnaire. This was done in a few ways. Demographic items were moved, following the pretest, and now constituted the last items on the questionnaire. This was in line with studies that showed that such a strategy significantly enhances completion rate (Roberson & Sundstorm 1990: 355). In addition to helping to avoid potential multicollinearity problems, the use of only five demographic questions was deemed appropriate to address

respondents' calculation of the potential threat of identification. Topic order was also addressed in order to raise response rate. Thus a job item deemed to be an important concern for the employees was placed first to ensure that the respondent was engaged and motivated to proceed and complete the survey. "Extent to which my supervisor listens and pays attention to me" (item 1) was the initial question presenting an engaging cognitive and affective challenge.

With the deletion of two open-ended items as a result of the pilot, the length of the questionnaire was even better. Studies have documented that long surveys risk information loss, or low return rate. According to Heberlein and Baumgarten (1978: 451), every subsequent question decreases response rate by 0.5% and every additional page by 5%. Yammarino, Skinner and Childers (1991: 623) reinforce the point when they say that there is considerable drop in completion rates when questionnaires are longer than four pages. Indeed, it appears convincing that data quality is associated with questionnaire length (Burchell & Marsh 1992: 238). According to Galesic (2004: 1), the respondents can become tired, annoyed, bored and/or distracted by external factors "as they struggle to fill long questionnaires". In such a response context variability of answers, length of answers, unit nonresponse rates and responses to socially sensitive questions can suffer, denying the researcher good quality data (Galesic 2004: 2). The pilot responses in this study did not appear to be substantially affected by the issues raised above, but nonetheless the completeness of questionnaires was an important concern based on some skipped items without which the quality of the EFA output could suffer.

Most of all, as previously noted, questions placed at the end are more likely to be skipped especially in longer questionnaires (Yammarino et al 1991: 624). However, questionnaire length can be both subjective and objective, as it may be measured by number of pages, but it may also be about the quality of questions. Good questions may make up for the demerits of physical length. In one study,

content was found to be the most important factor in generating responses (Greer, Chuchinprakarn & Seshadri 2000: 100).

The effect of demographic items being skipped because they may be placed at the end may hamper multivariate analysis, although techniques exist for handling missingness. However, in this EFA the most important questions (1-30) were the Likert-type satisfaction-specific questions (see Annexure Y).

After the pilot, the questionnaire which was initially 5 pages long was reduced to just 3½ pages (cover page included). Editorial work involving font size, typeface as well as graphics was done to enhance the appearance, readability, and subsequent completion rates in the main study.

6.1.2 Pilot respondent reactions

The pilot helped to gauge respondent reactions (some seemed to show indications of respondent fatigue; a few said they were over-surveyed, busy, uninterested; many others were exceedingly motivated and filled in the questionnaire on receipt). Face-to-face observation also helped to detect time taken to fill in the questionnaire and items that were comparatively more difficult (e.g. the item “extent to which communication in my workplace is adaptable to organisational emergencies” seemed to take more time and effort to decode). Despite guarantees of confidentiality, a few were apprehensive and, despite reminders and revisits, did not complete the scale. This reservation was perhaps due to items determining satisfaction with trust in the supervisor and other relational issues involving managers and colleagues.

As Kramer (1999: 54) observes, distrust and suspicion are common and recurring problems within many organisations. Indeed, mistrust may be present which is “a lack of confidence in the other, a concern that the other may act so as to harm one, that he does not care about one’s welfare or intends to act

harmfully" (Grovier 1994: 240). As the researcher was an organisational outsider, those especially hyper-vigilant research participants ruminative about personal consequences may have experienced more mistrust. To address their concerns, the researcher employed trust-enhancing strategies. These included explaining the purpose of the study, the inclusion of the word 'UNISA' prominently in the questionnaire header and self-introduction as a doctoral student. As an added safety procedure, respondents returned the questionnaire directly to the research assistants and not to organisational members, such as supervisors, in which case some categories of respondents might have felt insecure.

6.1.3 Psychometric observations

Pilot respondents were encouraged to comment on the general and specific aspects of the questionnaire (Peat et al. 2002: 25). They were first requested to comment on the instructions. The features of conciseness, clarity and completeness remained unchanged as the respondents agreed that they found them effective. Subjects were also similarly asked about the appropriateness, clarity and comprehensiveness of the items on the questionnaire.

Although they did not indicate particular points, a few felt that there was a degree of item redundancy, indicating that fewer items would do equally well. Other respondents, however, found the items adequately diagnostic and suggested no cutback. Their views corresponded with expert recommendations that a factor should contain more than three items to be content valid and reliable.

Two open-ended questions which were in the original version were deleted following participants' suggestion that they would be superfluous. The removal of the two open-ended questions reduced the number of pages to a more manageable three, which is in agreement with Armstrong and Overton's idea (1977: 396) that the use of brief and concise questions enhances the value and acceptability of an instrument. Burns and Grove (2004: 37) have indicated that

decisions on content validity are based primarily on a survey of the relevant literature, sample representativeness and expert opinion. However, it would have been unhelpful to ignore relevant perceptions of target respondents. In this regard, the pilot did consider important content reflections of the pilot study participants.

The length of the questionnaire and the format as well as the order in which items were presented was evaluated in the light of the pilot feedback and the methodological literature. Although the constructs were derived from existing scales, the hybridisation would require an assurance of a scientifically informed procedure of re-examination and revitalisation of existing ideas that are transplanted to the different organisational cultural context of the Ethiopian civil service. Therefore, it was important that contextual item defects as well as contextual wording ambiguity were addressed (Bolton 1991: 560). As deemed appropriate and in line with the literature, a pretest approach involving both personal and impersonal modes was employed to identify potential communication problems of the scale (Malhotra 1993: 38). Personal, telephonic and face-to-face encounters helped in assessing potentially ambiguous and inaccurate wordings in relation to changing organisational contexts (e.g. job titles having different meanings in the education bureau as opposed to other civil service departments).

Also on reflection, despite the acknowledged importance of item randomisation (Bishop 2012:157), it was necessary for the first item to ‘hook’ the respondents and to sustain their motivation for the rest of the questionnaire. By addressing the abovementioned cardinal elements of instrument development, the pilot study helped to enhance the communication effectiveness of the organisational communication satisfaction scale.

The pilot test also included an examination of the scale used. While it was possible to use a five-point scale, the seven-point scale was preferred because

studies show it is more accommodative and discriminating than a five-point scale (Coleman, Norris & Preston 1997: 359). This is consistent with the argument represented by Miller (1956: 86) that our brains have a span of absolute judgement that can discriminate about seven distinctive categories. In particular, the use of the seven-point scale is in agreement with the view that perceptions are best captured with such a scale (Malhotra 1999: 28). This was borne out by the pilot respondents who found the seven-point scale rich in response opportunities.

In a study of comparative effectiveness, Finstad (2010:107) found that five-point scales caused participants more interpolation, defined as "a response outside the bounds of the values inherent to the Likert items presented to participants". Interpolations represent intermediate values such as 3.5, 4.5 or 2.5. This pilot study therefore is believed to have produced minimal interpolations in view of the greater response diversity accorded participants. Also, as used in the pilot, the ordinal scale makes possible a more accurate reflection of respondent opinion (Zikmund 2000: 31). It also raises the variability of response data enabling stronger measures of association (Wong 1999: 55).

6.1.4 Pre-factorial procedural test results

Before the actual exploratory factor analysis it is standard procedure for tests to establish the appropriateness and soundness of the data for further analysis to be conducted. The results of these tests give direction about what should be done with further tests. However, it is important that multiple and detailed test results be reported as per recommendations in the methodological literature. The reporting of the EFA results in this section is done in line with Conway and Huffcutt (2003: 153; Fabrigar, Wegener, MacCallum & Strahan 1999:283), who recommend that is important that researchers conducting exploratory factor analysis report the following:

- Kaiser-Meyer-Olkin sample sufficiency test and sphericity test

- correlation matrix
- eigenvalues
- communalities
- variances accounted for
- recovered number of factors

One of the tests to be made early in EFA is the tests of Kaiser-Meyer-Olkin sampling adequacy and sphericity, which decide whether further EFA can be done. Table 6.1 presents the pilot Kaiser-Meyer-Olkin measure of sampling adequacy and sphericity test. In this study, as Table 6.1 shows, the Kaiser-Meyer-Olkin measure of sampling adequacy value is 0.565, which is acceptable but poor, suggesting more data should be gathered for meaningful EFA to proceed. According to Hutcheson and Sofroniou (1999: 225), any Kaiser-Meyer-Olkin measure value of between 5 and 7 is considered mediocre.

Table 6.1: Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test for EFA sample

Kaiser-Meyer-Olkin measure of sampling adequacy	.565
Bartlett's test of sphericity approx. chi square	924.756
Degrees of freedom	435
Significance	.000

Table 6.1 also reports the Bartlett's test of sphericity, which tests the null hypothesis that the correlation matrix is an identity matrix (Field 2005: 5). In the pilot the correlation matrix was not an identity matrix, indicating that there were relationships between the variables in the communication satisfaction study. The significant value of P > 0.00004 (R = 4.614E-018) indicates that factor analysis could proceed. But the test of sphericity is not the most important or the only test necessary test for EFA to proceed - commonalties are also informative.

6.1.5 Commonalties

Commonalties refer to the proportion of each variable's variance explained by EFA dimensions (Rummel 2012:3: Habing 2012:7) or factors extracted. As can be seen from Annexure D, the commonalties for the pilot EFA were high. Both the initial and extracted commonalties were within acceptable levels. According to Hair, Anderson, Tatham and Black (1998:111), loadings in this category can have the following values:

± 3.0 Minimal
± 0.4 More important
± 0.5 Practically significant

The extracted commonalties represent a low value of .46 and a high value of .94 with most in between indicating the practical significance of most values.

The determinant of R was (.0004), which is an indication that there was no multicollinearity or singularity. The determinant of the R-matrix should be > .00001 (Field 2005:2) for EFA to proceed.

6.1.6 Correlation matrix

EFA procedures require an initial computation of correlation matrix (also called factorability of R). Correlations in this pilot ranged between 0.001 and .600. However, correlations of over 0.3 are generally recommended (Tabachnick & Fidell 2007:63) but Hair, Anderson, Tatham and Black (2007: 614) propose as a rule of thumb ± 0.30 = minimal, ± 0.40 = important and ± 5 = significant. Hair et al. (2007: 614) advise that if correlations do not exceed ± 3, no factor analysis should proceed. The correlation can also extend to how items correlate within common factors. The graph below shows how the items of communication

satisfaction cluster around the common factor space. On SPSS, space can be interactively rotated to produce a clearer organisation of measured variables.

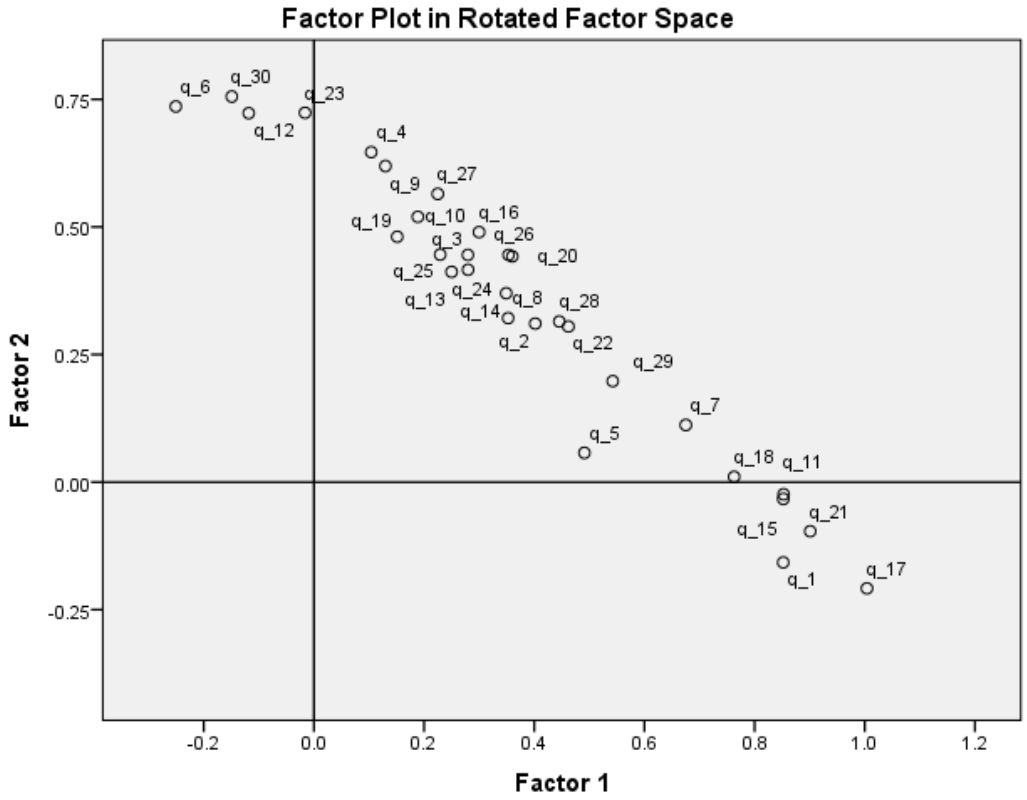


Figure 6.1: Factor plot in rotated factor space

6.1.7 Factors extracted

Several EFA rounds using differing numbers of factors and involving varied methods of extraction and rotation to find the most parsimonious factor solution were performed, but only a few of these are reported.

For the pilot, first maximum likelihood as a factor extraction option with direct oblimin was used. However, this produced an SPSS warning message that the matrix was “Not Positive Definite”, terminating the extraction. The “Not Positive Definite” problem necessitated a shift to another extraction method, namely principal axis factoring (which makes no distribution assumptions) with Promax as a rotation strategy suitable for correlated factors. The estimation now

proceeded with no more warning messages. The “Not Positive Definite” was due to pair-wise deletion as a suggested strategy to address missing cases (Arbuckle 1996: 326) which in the pilot study was high. Of the 50 cases, only 35 had full records. This represents a 30% rate of missingness. This rate is significant because the sample was already small (n = 50).

From the “total” column it can be seen that six factors had eigenvalues greater than 1. Looking at the “% of variance” column (see Annexure E) one realises that the first factor explains 41.73% of the information from the communication satisfaction variables, while the second factor explains a much lower 9.253%. This means that the two factors together explain over 50% of the variance, suggesting a much bigger share of the factors than the remaining factors with eigenvalues greater than 1 explained, between 7.87% and 4.53%. However, there is a large body of research showing that the eigenvalues-greater-than-one rule can be misleading and unreliable (Costello & Osborne 2005: 2).

In an earlier exploratory first run, eigenvalues of above 1 were proposed which produced seven factors (which was in excess of the six factors hypothesised to exist). The factors had low loadings and too many cross-loadings. But later factors were set to be six as per the a priori specifications. While the six factors captured nearly 74% of the variance (which is remarkable), nonetheless the pattern matrix displays a splintering of items causing singlets and doublets (which are unacceptable factors with two or fewer indicators). This also happens to be messy and meaningless in view of a priori factor specifications.

The pattern matrix for the seven factors in an earlier run showed a preponderance of factor loadings that were unacceptably low, even lower than the .32 set as the minimum by Tabachnick and Fidell (2007: 27). There were also numerous cross-loaders and only a few strongloaders (.5 and above). Later in a six-factor solution, SPSS was used to suppress values smaller than 0.3, which made the pattern cleaner. However, the pilot pattern matrix was still

unacceptable both on statistical and substantive grounds. Yet it does point to the need for a simpler structure.

6.1.8 Scree plot

Yet another decision to be made about the number of factors to retain was to use the scree plot alongside the eigenvalues report. Normally the point at which the eigenvalues begin to drop off is used as a cutoff point (Velicer & Jackson 1990: 11).

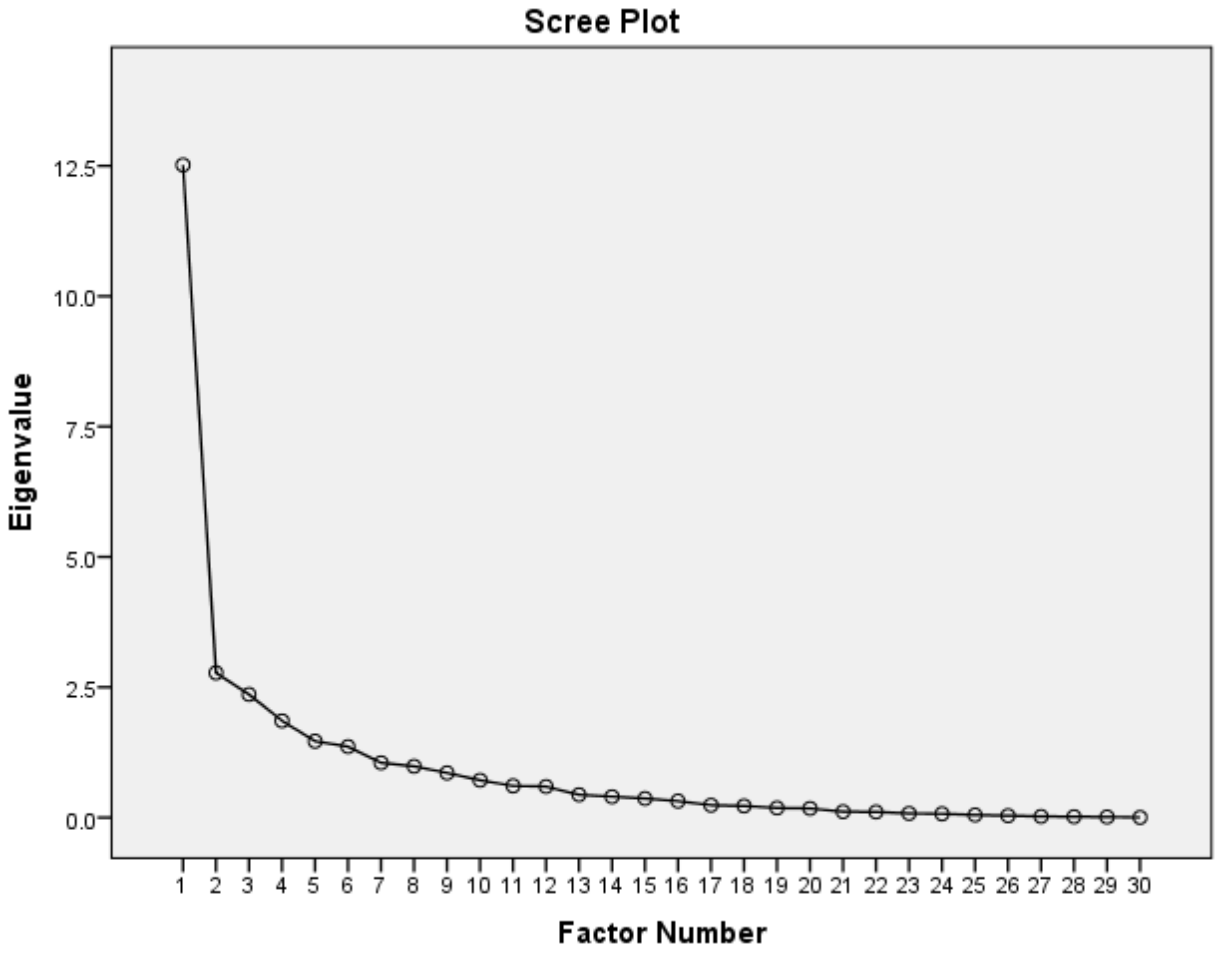


Figure 6.2: Pilot scree plot (suggesting four factors)

As shown in Figure 6.2, the curve starts to tail off after the fourth factor and each value is graphed against a factor. However, with each successive factor the curve is flatter, showing a sharp decrease in contribution to total variance.

The pilot test runs did produce seven to nine factors, while the prespecified number was six. This could be due to small sample size (n = 50). A study by Costello and Osborne (2005:7) showed that the smaller the EFA sample, the more the probability of item misclassification, resulting in 'rogue' factors emerging. Their findings showed that only 10% of samples in the smallest samples (2:1) resulted in correct factor solutions. By contrast, participant-variable samples of (20:1) demonstrated 70% factor extraction accuracy. All the same, often even with large datasets and "the imperfections of real world data", EFA can be "an error-prone procedure" (Costello & Osborne 2005:7). Large datasets do not guarantee correct factor extraction; the robustness of the exploratory data itself is of considerable import in accurate factor extraction (MacCallum, Widaman, Zhang & Hong 1999: 89).

Table 6.2: Pilot factor solutions

Factor	#Items	Items	Alpha	% variance explained
2-factor solution				Total variance 50.97%
#1	19	2, 3, 8, 9, 10, 13, 14, 15, 16, 17, 18 19, 20, 21, 23, 24, 25, 26, 27	.955	41.72
#2	15	1, 4, 5, 6, 7, 8, 9, 11, 12, 13, 24, 27, 28, 29, 30	.955	9.25
6 factor solution				Total variance 74.43%
#1	10	7, 11, 14, 15, 17, 21, 23, 24, 26, 27	.76	41.72
#2	13	2, 3, 8, 9, 10, 13, 16, 18, 19, 20, 22, 25, 26	.74	9.25

#3	6	10, 12, 14, 22, 24, 30	.63	7.87
#4	6	1, 4, 5, 7, 8, 20	.51	6.18
#5	6	6, 9, 26, 27, 29, 29	.58	4.88
#6	5	2, 6, 12, 13, 27	.461	4.53

The pilot EFA indicated on the whole the need for more robust data because although the factors extracted capture a significant part of the variance explained, the factor pattern is not consistent with theory, nor do the factors that emerged make conceptual sense. Both factor overextraction and underextraction were noted in numerous tests that were conducted. However, these problems helped by indicating the need to employ a more accurate factor extraction strategy to be used in the main study.

6.2 MAIN STUDY ONE (EXPLORATORY FACTOR ANALYSIS)

The pilot gave insight into the nature of the Ethiopian civil servants' perceptual data on organisational communication and the possible factor structure to be expected. As noted, the pilot also gave directions about the appropriate factor extraction and rotation methods as well as indications about the need for a bigger dataset. It is now possible to proceed to the main exploratory factor analytic study with more experience and expectation and begin with a description of the respondent profile.

6.2.1 Respondent characteristics

The SPSS frequencies procedure helped to identify the distributional features for all cases of the main EFA study summarised in Annexures A, B and C. The frequencies contain demographics relating to gender, age and level of education, as well as length of service in the civil service.

A total of 22% of respondents were female, 69.3% were male and 8.7% did not indicate their gender. The mean age was 33.11, median 30.00, mode 26 and range 38. The maximum age reported was 59 years and the lowest was 21. Twenty respondents did not mention their age.

Educationally, 40% were high school graduates and about 9.8% had some college education. Basic college degree holders constituted 66.3% of the sample, and 11% reported having a graduate qualification. A final 12.1% did not indicate their level of education. The usable EFA sample was n = 264.

6.2.2 Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test

The suitability of the data for exploratory factor analysis was assured through the above tests which indicated that EFA could proceed.

Table 6.3: Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy	.946
Bartlett's test of sphericity approx. chi square	5735.300
Degrees of freedom	595
Significance	.000

In many exploratory factor analyses, the following criteria are used to assess and describe the sampling adequacy (Kaiser 1974: 34):

.90 = Marvellous

.80 = Meritorious

.70 = Middling

.60 = Mediocre

.50 = Miserable

Below .50 = Unacceptable

Accordingly, the EFA data in this study can be considered excellent for conducting exploratory factor analysis. In this study, the Kaiser-Meyer-Olkin measure of sampling adequacy value of .94 represents a significant improvement on the pilot. The Kaiser-Meyer-Olkin measure of sampling adequacy of .56 was between 'miserable' and 'mediocre'.

6.2.3 Reliability

The most common index of reliability appears to be the use of Cronbach's alpha. Cronbach's alpha is used to determine the internal consistency of the items of a scale. In this particular study, Cronbach's alpha was .96. This value is excellent, according to George and Mallery (2005:231), who have proposed the following rules of thumb:

Table 6.4: Alpha rule of thumb

Cronbach's alpha	Internal consistency
α ≥ .9	Excellent
.9 > α ≥ .8	Good
.8 > α ≥ .7	Acceptable
.7 > α ≥ .6	Questionable
.6 > α ≥ .5	Poor
.5 > α	Unacceptable

Cronbach's alpha closer to 1 as observed reflects high internal consistency, but high internal consistency does not prove dimensionality (Gliem & Gliem 2003:87). Other tests need to be conducted.

6.2.4 Multicollinearity

In this study the SPSS determinant of x'x was used (from among several options) to test the presence of multicollinearity. Paul (2006:8) states that in the x'x matrix, being in a correlational form, the values of the determinant of R must be greater than 0. In this study the determinant of R was .0008, which is an indication that multicollinearity was not a problem (Hawking & Pendleton 1983:543). This score is also evidence that singularity, which is an indication of redundancy, was also conspicuously absent (Tabachnick & Fidell 2007:614; Horn & Martin 2012:4). But it should also be noted that both multicollinearity and singularity are a matter of degree and not absolute presence or absence (Paul 2006:1).

6.3 NORMALITY TESTS

Normality is an important issue because many statistical tests are based on assumptions of distributional normality, especially tests in structural equation modelling (Thompson 1984:18; West, Finch & Curran 1995:60; Pelavin 2006: 2).

In this EFA study (as in the CFA part of the study), the histogram was used to test normality preceded by a statistical test with the same function. However, the statistical test involving the Kolmogorov-Smirnov procedure was more economical as it produced a single outcome for decision. The test showed that the data did deviate from normality. However, the Kolmogorov-Smirnov procedure (Stevens 1996: 26) as used in this study is also known to be sample size sensitive and to provide misleading results when sample size is large (n = 264 in this EFA study). The visual examination of the histogram gave an indication that the normality was not severe as did other normality tests.

The first was a test of outliers, which can occur for different reasons. The foremost is incorrect data entry, which did not occur in this study except in the case of age as a demographic attribute. One cell was deleted because the age

was indicated as 80, which is anomalous and impossible since there can be no civil servants of this age, which is 20 years more than the retirement age.

Secondly, missing values often designated as 99 may be included in calculations. While this did happen in this study, its occurrence was limited to the demographic questions, which could not have affected Likert items.

In this study, univariate outliers were investigated for each item using the box plot, which is a graphical display of the spread of the data. There were indeed ten outliers but they were not extreme. An extreme outlier is more than three times the interquartile range. The difference between the mean and the trimmed mean as can be shown in a descriptive statistics table can also help to sense the existence of outliers. The bigger the distance between the mean and the trimmed mean, the greater the likelihood that there are extremes. The outliers in the EFA were retained because in a satisfaction study such as this, respondents can naturally have extremes of attitudes on both ends of the spectrum. Therefore their removal would have compromised the integrity of the data. As Stevens (1996:18) notes, “outliers should not necessarily be regarded as bad. As a matter of fact, it has been argued that outliers can provide some of the most interesting cases for further study”. However, kurtosis and skewness are also important normality indicators.

There were also tests involving kurtosis and skewness (Moors 1986; Chan 2003). According to Chan (2003: 282), normal skew is spread between the values of -1 and +1, but the range is from -3 to 3. Kurtosis, the peakedness of a measure, lies between -1 and 1.

As can be seen in Annexure K, in this particular EFA study there were no skewness and kurtosis points outside of the acceptable range. The highest kurtosis value was a low -.1.23 and the lowest .091. The skewness range was also low (-.78 to -.078).

In this exploratory study, a Mahalanobis distance was computed and chi-square values for the 30 indicator variables showed that Marda's points above 59.73 represented significant departure from the centroid. About 17 data points were particularly labelled distant from the centre. However, it was not necessary to delete the outliers as it was felt they represented aspects of the population.

6.4 PARALLEL ANALYSIS

Once, according to the EFA protocol, all necessary tests were done, the main EFA was finally guided by the best procedure currently available - parallel analysis (Henson & Roberts 2006: 398).

The results for the final EFA are thus based on the use of parallel analysis as the most reliable factor retention procedure with implications for the new instrument (Hayton, Allen & Scarpello 2004: 201). As shown in Annexure J, only two SPSS values, namely 14.394 and 1.680, were greater than the parallel analysis values in the table. This indicates that there was a two-factor solution based on parallel analysis as the most accurate extraction procedure.

However, the parallel analysis does not indicate what these factors are; it merely suggests with the best degree of accuracy possible that the empirical observations indicate that the best structure has two factors. The parallel analysis was only a point of departure and there were attendant decisions throughout the EFA that had to be made based on theory, research and judgement.

Thus, after the initial EFA run based on the parallel analysis, an inspection of the pattern matrix of the two-factor structure showed that there was a Heywood case (item 17) which loaded 1.004. Kolenikov (2012:3) states that factor loadings above 1 are often cases of anomaly, specifically Heywood problems that must be addressed. The first option was to conduct data transformation as "reexpression of variables" as a remedy to outliers having a suspected effect on factorial scores

(West et al. 1995:70). However, the offending variable continued to surface, which is often possible. Some outliers, even after transformation, can continue to be a problem (Tabachnick & Fidell 2007:77).

According to Bollen (1987:379), cases causing a Heywood complication can be dropped to produce a cleaner pattern. Thus, it was necessary to remove the variable in question, after which the EFA was rerun.

After the rerun, items 2, 8, 15 and 22 (which misloaded on factor 1) and items 23, 25 and 27 (which misloaded on factor 2) were readily deleted. Items 6, 12, 18, 24 and 30 were deleted as they were more related to job satisfaction - a construct which was part of the initially hypothesised six-factor solution. Indeed, items such as “extent to which I am satisfied with my pay” (item 6), “extent to which I like my job in the sub-city administration” (item 30), “extent to which I have chances for promotion and an advancement” (item 18) and “extent to which I feel secure about my job” (item 24) were more reflective of the construct of job satisfaction, which is independent of communication satisfaction (Gregson 1991: 39).

Table 6.5: Comparison of final six-factor versus two-factor solutions

Factor	#items	Items	Alpha	% variance explained
6-factor solution				Total variance 68.41%
#1	8	1, 7, 8, 11, 14, 15, 18, 21	.99	47.98
#2	6	23, 24, 26, 27, 28, 29	.87	5.59
#3	7	10, 13, 16, 18, 19, 20, 22	.89	4.49
#4	5	6, 12, 14, 23, 30	.81	3.88
#5	5	1, 2, 3, 4, 5	.81	3.64
#6	3	8, 9, 10	.55	2.83
2-factor solution				Total variance 53.57%
#1	14	1, 3*, 5, 7, 11, 13, 14, 15, 18, 20*, 21, 26*, 28, 29	.96	47.98
#2	7	3, 4, 9, 10, 16*, 19, 20, 26	.96	5.59

* cross-loads

Still on pattern inspection after the rerun, it was discovered that the matrix was not fully clean, as often happens in many exploratory factor analyses. As Table 6.5 shows, there were three cross-loads as indicated below in the parallel analysis based EFA output. This is much cleaner than the six-factor output obtained using older strategies (eigenvalues and scree plot). The cross-loads included:

- Item 3: Extent to which the social information communication is active in my workplace.
- Item 16: Extent to which communication in the organisation makes me identify with it or feel a vital part of it.
- Item 20: Extent to which I receive reports on how problems in my job are being handled.
- Item 26: Extent to which my managers/supervisors understand the problems faced by staff.

These loaded on both the informational and communicational satisfaction constructs but were judgmentally made to form part of the informational satisfaction construct. These may indeed conceptually relate to information provision, which can explain social workplace information, reports detailing job-relevant information as well as supervisors' understanding of staff problems. These may be impacted by a system of vertical information exchange. According to Matsunaga (2010:101), researchers can use judgement and reflection to decide on cross-loads since the methodological literature offers little precise guidance.

The final factor structure therefore had two dimensions with the following items:

Relational factor = 1, 5, 7, 11, 13, 14, 21, 28 & 29 (9 items)
Informational factor = 3, 4, 9, 10, 16, 19, 20 & 26 (8 items)

The naming of the factors is based on the content of the items that form the factors, as suggested by Kenny, Kashy and Cook (2006). These two factors identified by EFA are used as input for the confirmatory factor analysis part of the study, which tests the measurement model proposed under figure 6.3.

6.5 MAIN STUDY TWO (CONFIRMATORY FACTOR ANALYSIS)

As was indicated in the SEM methodology chapter, confirmatory factor analysis is used to determine whether a proposed factor structure fits the empirical data (Dumont 2012:5). This procedure helps to constrain some particular values while freeing others as may be necessary as part of the model identification and fitting process. This way the estimation of the parameters in the model is made possible. In this third part of the study, the test result of the hypothesised model as derived from Main Study One, the EFA, is reported and discussed. The main EFA study resulted in 17 items (relabelled q1-q17) being retained out of 30. In other words, after the main exploratory factor analysis 13 items were dropped and the remaining 17 were retained. The 17 measured variables (from q1-q17) that finally formed the hybrid organisational communication satisfaction scale were renumbered consecutively, as shown in Table 6.6, for the next confirmatory procedure. The CFA data was collected using the new modified scale with 17 items.

Table 6.6 **Revised hybrid scale of organisational communication satisfaction**

Statement	Very dissatisfied	Dissatisfied	Slightly dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Satisfied	Very satisfied
1. Extent to which my supervisor listens and pays attention to me.	1	2	3	4	5	6	7
2. Extent to which I trust my colleagues.	1	2	3	4	5	6	7
3. Extent to which my supervisor offers guidance for solving job-related problems.	1	2	3	4	5	6	7
4. Extent to which I trust my supervisor.	1	2	**3**	**4**	**5**	**6**	**7**
5. Extent to which communication with other employees at my level is accurate and free flowing.	1	2	3	4	5	6	7
6. Extent to which I receive recognition of my efforts.	1	2	3	4	5	6	7
7. Extent to which my supervisor is open to ideas.	1	2	3	4	5	6	7
8. Extent to which conflicts are handled appropriately through proper communication channels.	1	2	3	4	5	6	7
9. Extent to which I feel free to disagree with my supervisor.	1	2	3	4	5	6	7
10. Extent to which the social information communication is active in my workplace.	1	2	3	4	5	6	7
11. Extent to which communication in the organisation makes me identify with it or feel a vital part of it.	1	2	3	4	5	6	7

12. Extent to which my workplace communication motivates me to meet its goals.	1	2	3	4	5	6	7
13. Extent to which communication practices are flexible to suit organisational emergencies.	1	2	3	4	5	6	7
14. Extent to which employees in this organisation have great ability as communicators.	1	2	3	4	5	6	7
15. Extent to which informal communication is active and accurate.	1	2	3	4	5	6	7
16. Extent to which I receive reports on how problems in my job are being handled.	1	2	3	4	5	6	7
17. Extent to which my managers/supervisors understand the problems faced by staff.	1	2	3	4	5	6	7

Demographic items

18. What is your age? _____
19. What is your sex? M or F (circle answer).
20. How long have you been in your current position? _____
21. How long have you worked for the organisation? _____
22. Please indicate which best indicates your formal education. A. Did not finish high school, B. High school, C. Completed some college, D. College degree, E. MA/MS or above

According to Schumacker and Lomax (2004:80-81), CFA uses three procedures as reported in this study to determine whether and to what degree empirical observations tally with theoretical propositions as presented in a model. The first procedure establishes the similarity between sample covariances and model implied covariances. The second is levels of significance for individual parameter estimates of the SEM paths as, for instance, given by squared multiple correlations. The third is the number as well as direction of parameter values and whether these make theoretical sense.

In this study, the reporting of the CFA is done in line with the Publication Manual of the American Psychological Association (APA 2002:164-7) which states that the report should consist of means, standard deviations, as well as intercorrelations and example tables for other researchers to conduct replication. But more important is the work of Schumacker and Lomax (2004:251-255), which provides a long checklist as guidance for conducting and reporting CFA project processes and outcomes centrally. It shows the steps from data preparation through model specification, identification, estimation, testing, modification and validation.

6.5.1 Sample characteristics

As Annexures M, N, L and S show, the population of respondents from which the CFA data was gathered was 288. It was qualitatively similar to the EFA population but larger, since CFA requires more subjects than EFA (Guadagnoli & Velicer 1988: 268). About 66.30% were male civil servants and 25% were female. About 1% reported to have completed high school, and 12.2% to have some college education. About 65.3% had a basic college degree and another 10.80% indicated they had a graduate degree. A final 10.8% did not report their level of education. The mean age of the respondents was 33.53, the median 32

and the range 39, with the oldest respondent reporting to being 59 and the youngest 20. The final usable CFA data came from 277 respondents.

6.5.2 Reliability

Reliability as measured using coefficient alpha was generally high. It was α = .93 for the relational construct, .87 for the informational dimension and .94 for the new measure as a whole.

6.5.3 Normality

The CFA data was free from univariate normality problems with a maximum skewness of -.74 and kurtosis of -1.17. However, there was also a severe multivariate nonnormality with the initial Marda's value 71.159.

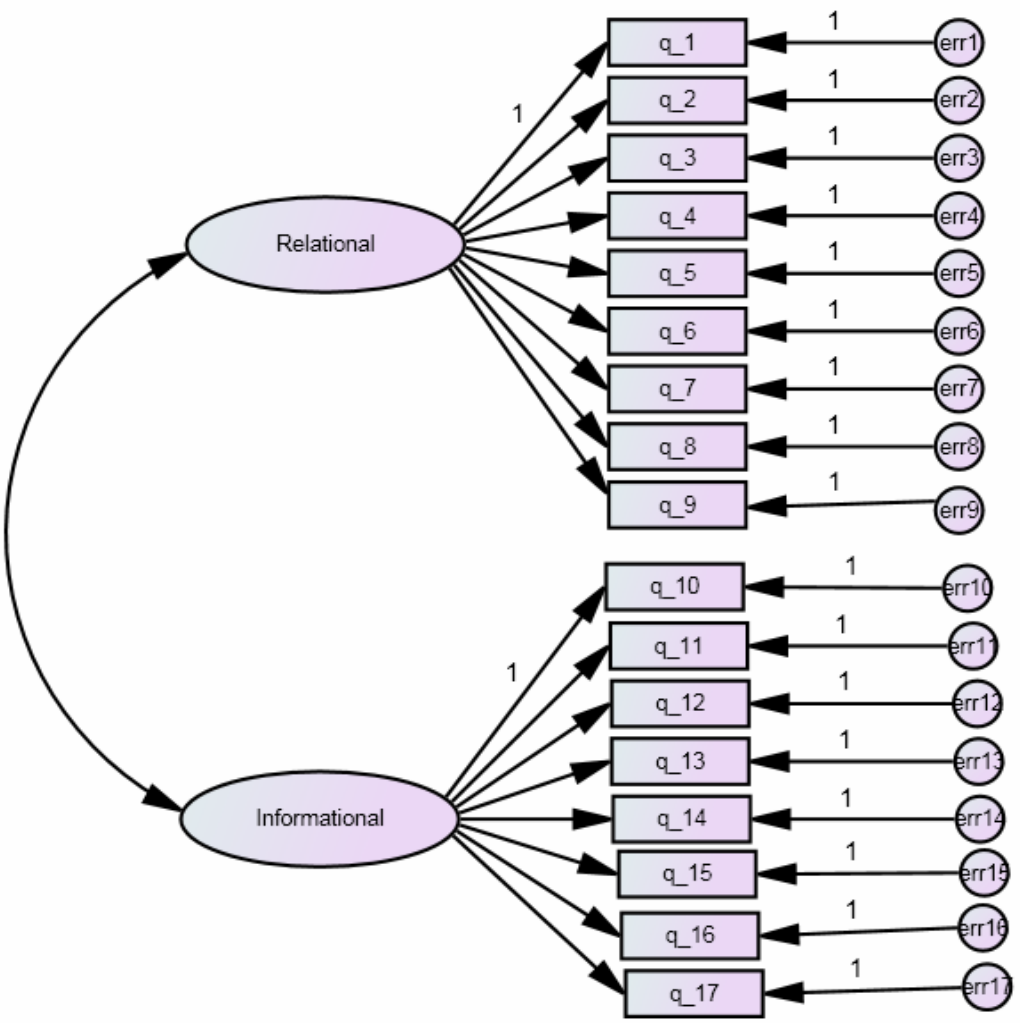


Figure 6.3: Proposed two-factor model of communication satisfaction

Several tests added to a full diagnosis of the model fit. These include the standardised regression weights connecting constructs and their indicators, as well as squared multiple correlations between constructs and indicators showing the r-squared.

6.5.4 Parameter estimation

At this stage, the hypothesised two-factor structure of organisational communication satisfaction and its parameters, including regression coefficients and variances and covariance, were estimated from the data. In other words, the

operationalised constructs of informational satisfaction and relational satisfaction and their hypothesised relation were estimated. The estimation procedure was related to the characteristics of the data. In this study, the estimation was based on the maximum likelihood procedure. The estimator was used because of its robustness even in the absence of multivariate normality assumptions. The estimator also makes possible the calculation of the chi square as the most common measure of fit. The chi square helps to test the relationship between the theoretical postulates and the empirical datasets gathered for the CFA. However, the test is not without limits and so other fit indices have to be used to offset the limitations. Because the data in this second main study were not found to be multivariate normal, a bootstrap procedure involving the Bollen-Stine subtype was employed to address the normality problem. This particular bootstrap involves resampling as a way of parameter estimation. This helps estimate standard errors of parameters when data are clearly multivariate nonnormal.

As the Amos output would confirm (see Annexure R), all the communication satisfaction measured variables operate as dependent variables; the two factors are unobserved as are all the disturbance terms. Also available and displayed is a summary of all variables and the specified variables in each of the two dimensions presented for CFA.

The parameter summary also includes fixed and estimated regression weights including factor weights and disturbance terms. The summary also includes the totality of covariances as well as variances. There is also a degrees of freedom report which determines the identifiability of the model.

6.5.5 Model assessment

The initial run produced a bad fit between the hypothesised structure and the data relating to the CFA. The model chi-square test gave significant p-values as expected owing to its particular sensitivity to large samples (n>200) as well as its

assumptions of normality. The p-value-based test was nevertheless not the only test and other more suitable tests from different categories were conducted. The first was the relative chi square which is also called normed chi square (Garson 2004: 20). The (χ2/df) of 327.593/118 (2.77) was an indication of marginal fit of the originally proposed model. A drop in the relative chi-square value was therefore important to produce an acceptable test value, even though there is admission to be made of a post hoc procedure. It should be noted that other fit indices also indicated a poor fit.

The modification indices indicated paths which might improve the fit of the proposed model. The relevant Amos output suggested covariance paths as well as regression lines. While the modification indices for new regression lines to improve fit should be rejected based on the 'meaningfulness rule' (Byrne 2001:107), it is important that covariance paths be added on substantive grounds alone and as per expected parameter change values. In this study, the visual inspection of the modification indices and par change values led to the discovery that a covariance between two disturbance terms (er8 and er17) as indicated in the large modification indices value of 24.91 would lead to a significant .468 par change (see Annexure R). Another covariance line suggested in the output was between er5 and er10 (with a modification index of a high 21.127 and parameter change of .485). Together the two covariance paths helped to improve the model fit in spite of the controversy surrounding the creation of cross-factor error paths.

Indeed the correlation of error terms or creation of error paths, even if suggested by modification indices, is not a subject on which there is complete agreement in the psychometric community. Smolkowski (2012:1) indicates that correlated errors are acceptable but must be applied conservatively and only in the presence of substantive rationale. Jöreskog (1993:297) also agrees to the possibility of error correlations being allowed, but says any such correlation must have an empirical/substantive justification. Similarly, Bollen and Lennox

(1991:310) argue that correlated disturbance terms are possible, especially in items with similar statements.

Thus, there are valid reasons not to ignore errors. One is that “all observation is fallible, no matter how refined the measuring instrument and no matter how careful the procedure of allying it” (Duncan 1975:113). Marsh (1989: 338) and Gerbing and Anderson (1984:575) mention that ignoring correlated errors leads to overestimates of structural parameters as well as the acceptability of model fit. However, there are also conditionalities. One condition is that correlated measurement errors can be allowed on the grounds that they do not alter first the structural parameter estimates (Fornell 1983:447) and second the measurement estimates (Bagozzi 1983:450). In this study, the correlation of errors did not alter the model in a fundamental manner, structurally or from a measurement point of view.

Byrne (2001:107) suggests that the correlation of error terms may indicate overlap in item content as perceived by respondents. It may also show contamination of one response by a response to a previous question.

In this study, a possible explanation for the presence of correlated errors is that in some cases respondents did not seem to distinguish between the individuality of items in a set in the constructs, due possibly to meanings being culturally shaped. Perhaps for the same cultural-perceptual reasons, the six originally proposed dimensions had to be reduced to just two because respondents could not distinguish between the constructs.

6.5.6 Model revision

The revised model’s test of the dimensionality of organisational communication satisfaction as a two-factor conceptual structure produced a normed chi-square (as opposed to model chi-square) value of 271.019 with 116 degrees of

freedom. The value of 2.33(χ2/df) obtained indicates the model fit is acceptable on chi-square evidence alone and represents a χ2 drop of 56.574 (327.593-271.019). In other words, the normed chi square as the conventional test of fit indicates that the model implied covariances, the observed sample covariances concurred and the data-model fit was reasonably good. Several authors (e.g. Carmines and Mclver (1981:80)) recommend a χ2/df value of 2-3 for a model to be acceptable.

A more stringent recommendation is that the chi-square value should be less than 2 (Ullman 2001: 660). However, the χ2 is also known to be sensitive to large samples which may inflate it to a degree as in this study (n = 277), and its use is conservatively employed or even in some cases ignored in favour of other fit indices that are less sensitive to sample size (Schumacker & Lomax, 2004:82). According to Barrett (2007:816), the Type I error (rejection of a correct model) that might arise is due to the mathematical reality that the larger the sample size, the larger the multiplication of discrepancy will be in the exact fit test, which is exactly what the chi square does.

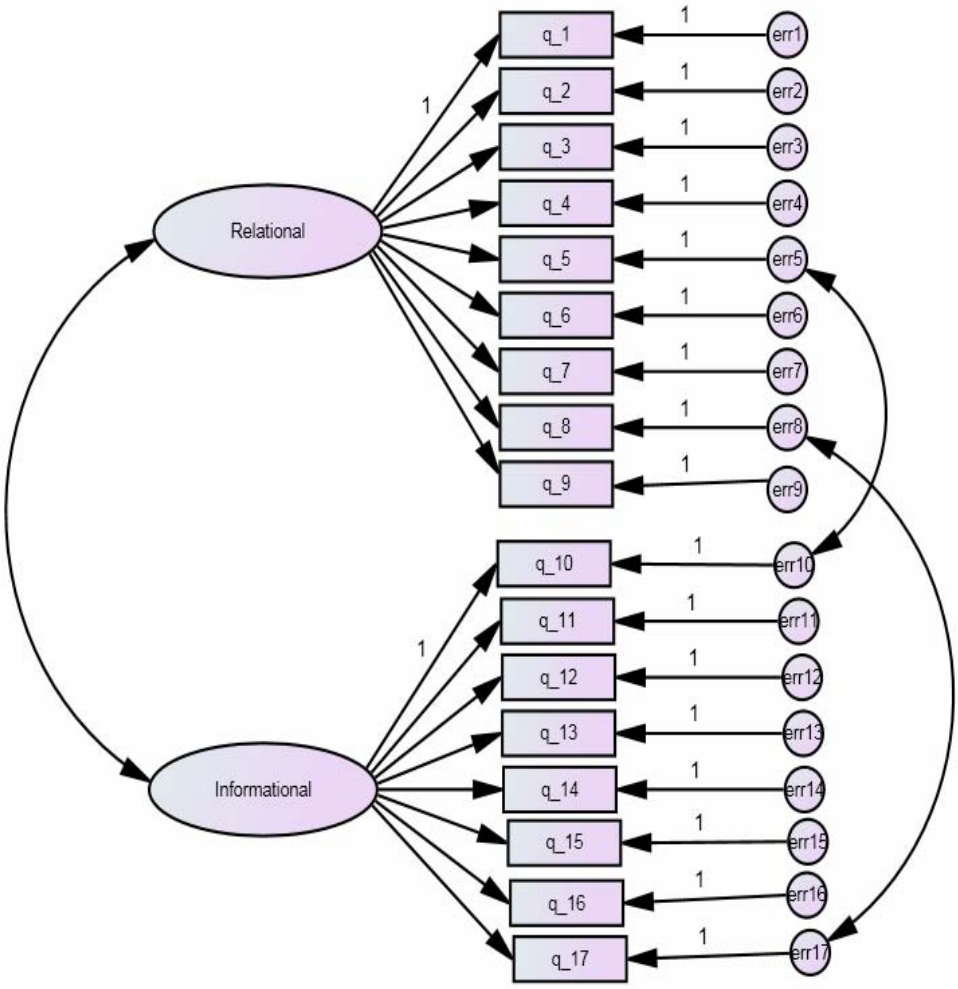


Figure 6.4: Nested two-factor model of communication satisfaction

The Bollen-Stine bootstrap of P = .005, although larger than the model chi square, proved too significant to accept the model. Besides the usual sample sensitivity of the test resulting in false significance reports, the multivariate nonnormality of the data is also to blame. But even if there were multivariate nonnormality, as Annexure S shows, there is no kurtosis and skewness problem at the univariate level. Based on existing guidelines (Walker 2010:20), there was no univariate nonnormality since there were no univariate values exceeding the cutoffs of 3 (skewness) and 8 (kurtosis). Even after the elimination of outliers (cases 18, 190, 261, 150, 202, 230 and 224), the original severe nonnormality with Marda's value of 71.159 was reduced but to a still high value of 63.189. The

elimination of the extreme values was based on extreme distance from the centroid in relation to a relevant reading of a table of chi-square statistics. However, the reduced Marda's coefficient reflected reduced but continued nonnormality severity. All the same, the strategy of using a Bollen-Stine bootstrap of 200 iterations indicated that in all iterations the model did not fail or fit worse in any bootstrap sample.

Thus, Amos reported that the model fit better in all 200 bootstrap samples and fit worse or failed to fit in none. However, the exact reading of the procedure falls short of meeting the Bollen-Stine p-value of .05 for accepting satisfactory model fit.

Nonetheless, fit indices should not be the only criterion in model assessment. As Kline (2005:321) advises, researchers should avoid what he calls "fit index tunnel vision" and consider complementary tests of fit. Thus in this study, model evaluation was also done using other parameters which are not necessarily less important than traditional fit indices. One of these was the inspection of critical ratios. According to Byrne (2001: 241), critical ratios give information about the variable relationships indicated. As a rule, critical ratio values >1.96 indicate significant paths (Garson 2004:7). In this study, all critical ratio values, which ranged between 8.85 and 12.79, are an indication that all relationships are significant.

On statistical grounds, the model fit diagnostics must also address two other important statistics, namely residuals and regression weights. The standardised residuals as indicators of model fit provided further evidence of the fit of the revised model. According to Savalei and Bentler (2012:37), residuals are highly informative because they point out the difference between observed and estimated covariances, giving a reliable indication of degree as well as location of fit. Residuals, when standardised, must be at most 2.58 (Byrne 2001: 89). In this CFA study, the output for the relevant statistics shows that all standardised

residuals were in line with the critical ratio ≤ 2.58 rule of thumb (Jöreskog & Sörbom 1988: 32). There was only one item with a value of 2.60, which exceeds the acceptability limit. This value only marginally goes beyond the residuals recommendation. The obtained regression weights (.550 - .831) are also significant based on the CFA literature. According to Comrey and Lee (1992:167), regression weights are good at .55, very good at .63 and excellent at .70. In this regard, 13 of the regression weights would be considered excellent and only 4 just good.

The squared multiple correlations also indicate that the effect sizes are significant. According to Aron and Aron (1999: 35), scores of .01 represent small effect, .06 medium effect and .14 large effect. In this study all squared multiple correlations were within the range .33 to .69 and would therefore be considered significant. Indeed, the correlations give a measure of the proportion of variance explained by the dimensions onto which the measure variables load, indicating the items' power to measure the specified factors. The two factors in the model explain a significant part of the variance within the range indicated.

Following recommendations from SEM authorities Byrne (2012) and Kenny (2012), a one-factor model was also fitted by constraining the correlation between the two factors to 1 (see Figure 6.5) to test the possibility that communication satisfaction may be unidimensional and fit the data better. However, as can be seen from Annexure T, the corresponding indices give an indication of the model's poorer fit to the data. Thus Bollen-Stine bootstrap p = .001 was inferior to that of the bifactor model of p = .005. In addition, a goodness of fit index of .85, a comparative fit index of .92, and a normed fit index of .88 as well as a chi-square/degrees of freedom value of 2.82 show that the one-factor model did not fit better.

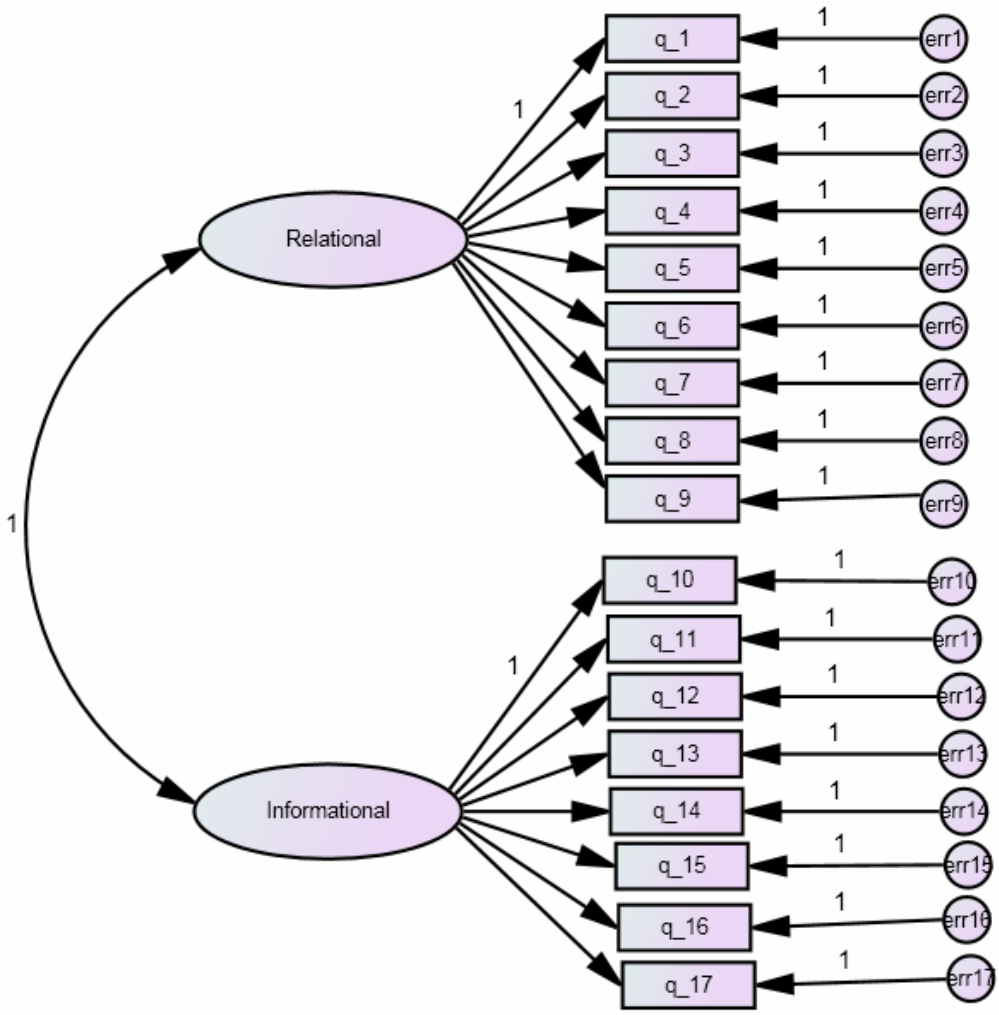


Figure 6.5: Nested one-factor model of communication satisfaction

It is neither necessary nor possible to report all fit statistics given the very large number and type of fit indices. According to Hooper et al. (2008:56), there are no golden rules for evaluating model fit, but reporting a variety of indices is necessary since varied indices demonstrate a different dimension of model fit.

Table 6.7: Model fit statistics

Type of fit index	Overall model	Recommended
Normed fit index	.91	≥ 0.90
Comparative fit index	.94	≥ 0.90
Chi square/degrees of freedom	2.33	<2 excellent; 3-5 acceptable
Root mean square error of approximation	0.07	0.06 to 0.08
Goodness of fit indices	.89	.90
Tucker-Lewis index	.93	≥ .90
Incremental fit index	.94	≥.90

(Hooper et al. 2008:58; Hair et al. 2007: 747; Brown 2006:85; Schreiber, Stage, King, Nora & Barlow 2006:30)

6.6 VALIDITY CHECKS

As indicated in the methodology section, validity assurance is an important procedure in the determination of psychometric soundness of a measurement instrument. The methodological literature has identified six aspects of validity, namely content validity, construct validity, factorial validity, reliability, convergent validity, discriminant validity and nomological validity (Lewis et al. 2005: 390). In this study, all steps in and aspects of instrument validation and evaluation were addressed to ensure the scientific soundness of the organisational communication satisfaction scale.

6.6.1 Content validity

The abridged instrument of organisational communication satisfaction is believed to have sufficient relevant content, relevance to the study population to which it was administered, in addition to having comprehensiveness of the content domain in the relevant area of application (Anastasi 1988: 139).

In the assurance of content validity, the proposal by Tojib and Suglanto (2006: 35) that a two-step procedure be followed to address content validity was followed. Firstly, the ample literature was reviewed for the determination of definition, relevance and comprehensiveness of the constructs of communication satisfaction. The second step was assurance of content validity through expert judgement, which involved consultations on the subject with communication scholars. The experts agreed that the items as well as the categories tapped the elements of the universe of communication satisfaction.

6.6.2 Factorial validity

Peter (1981: 134) defined factorial validity as "the vertical correspondence between a construct which is at an unobservable, conceptual level and a purported measure of it which is at an operational level". Factors/constructs may also be described as phenomena of theoretical interest referring to phenomena that are real and that exist, such as attitudinal and affective constructs (Edwards & Bagozzi 2000: 157).

The factorial validity of an instrument relates to the degree of its relationship to the dimensional units of a construct (Barki & Hartwick 1994: 425). Also called construct validity, factorial validity relates to "the very correspondence between a construct which is at an unobservable, conceptual level and a purported measure of it which is at an operational level" (Peter 1981:134).

In this communication satisfaction study, the repeated tests of exploratory factor analysis helped to establish the two constructs of informational satisfaction and relational satisfaction. Confirmatory factor analysis also showed the validity of the two constructs relating to communication satisfaction. The various fit indices (see Table 6.6) also confirm the factorial validity of the instrument developed to tap civil servants' communication satisfaction. The regression weights and multiple

squared correlations also provide further support for the factorial validity of the new instrument (see Annexure S).

6.6.3 Reliability

The commonest measure of reliability is Cronbach's alpha which gives an indication of the extent to which indicators belong together to a factor (Garson 2004:4). The items as measured by Cronbach's alpha were generally above .70, giving a measure of confidence of their reliability. The overall alpha was .94. In the CFA study, the relational factor had an alpha of .90 and the informational dimension an alpha value of .88. This ensures the reliability of the constructs. In the exploratory study the reliability was a high .96.

The number of items per factor also gives an indication of factor reliability. A number of indicators were identified in each of the two factors: nine for the relational construct and eight for the informational construct, which adds to the reliability of the constructs. According to Stevens (2002:395), a factor is reliable if it has four or more predictors with loadings of 0.60. In this study most loadings were >.70 and therefore above the recommendations for adequate reliability.

The use of SEM enhances reliability beyond all other conventional regression models. Measurement error terms clearly indicate the amount of error and so the path coefficients are unbiased by error (Garson 2004:5). Measurement error is clearly quantified and therefore all measurements are scientifically and demonstrably reliable.

6.6.4 Convergent validity

A measure often has to show that theoretically related constructs are empirically tested and their expected relationship demonstrated. Convergent validity is tested using a correlation index involving constructs on a measure. Conceptually

related dimensions are expected to show a high degree of correlation. In this study, it was expected that relational and informational factors would demonstrate high correlation. This was borne out by the CFA test, which gave a correlation of .96 between the two factors of the organisational communication satisfaction scale. However, this same value of .96 may signal a problem when it comes to discriminant validity.

6.6.5 Discriminant validity

In studies with high interfactor correlations, such as the present study, a demonstration of discriminant validity is crucial to save the research from misanalysis (Farrell & Rudd 2009:5). There were two relevant concerns in this study: the presence of cross-loads as well as a high correlation value, which often leads to a suspicion of discriminant validity problems.

From among a few existing strategies to determine discriminant validity, this study employed a chi-square difference test (Zait & Bertea 2011:218). This procedure enables the researcher to compare two models, one with a constrained bifactor structure and a second where the factors are tested as orthogonal or unrelated constructs. If the two tests produce a significant p-value each, then there is evidence of discriminant validity (Farrell 2009:324).

In this study, the two model tests produced a significant probability value, which led to the conclusion that the two factors had discriminant validity. In other words, the discriminant validity was evidence that two constructs of relational satisfaction and informational satisfaction, which are theoretically distinct, are indeed shown to be so empirically.

6.6.6 Nomological validity

In this study, the significant interfactor correlation between the dimensions identified through EFA and confirmed by CFA indicates that this study has a nomological contribution to studies of organisational communication satisfaction. In other words, the relationship between informational satisfaction and relational satisfaction, which can be summed up to form a higher order construct of general communication satisfaction, adds to our understanding of the network of relationships in the communication satisfaction dimensional network (Cohen 1979: 29).

As would be theoretically predicted, a bigger nomological network emerges as the original data in this study shows a high intercorrelation between the communication factors and elements of job satisfaction, leading to a wider communication variables conceptual network. Theoretically, the empirical evidence can be used to highlight the issue of how constructs and models interrelate in a broader nomological network (Finch, Panter & Caskie 1999: 409). Empirically the nomological evidence is the consistency of the findings of this study with previous research on parsimonious communication satisfaction models (e.g. Varona 2002:5; Pincus 1986:415).

The main thrust of this work is that the six communication satisfaction constructs that were originally proposed using nonstatistical criteria were not reproduced in the exploratory factor analysis. That is, the hypothesis that organisational communication satisfaction responses can be explained by six factors (horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction) was not accepted. Instead, the rival hypothesis that organisational communication satisfaction is best understood as a two-dimensional construct is empirically validated and theoretically justified.

6.7 SUMMARY

This chapter discussed the outcomes of both the EFA and CFA in relation to previous research. It also expounded on the different decisions made, including use of fit indices, to arrive at the most parsimonious solution selected for the study. The chapter also validated the hybrid organisational communication satisfaction scale using multiple validation procedures. Theoretical support is extended to the measurement model that contains relational and informational dimensions.

Chapter 7 reviews the empirical findings against the hypotheses presented in the methodology chapter. A summary is given of the highlights and avenues for further research are suggested based on the limitations specified and discussed.

CHAPTER 7: SUMMARY, DISCUSSION, LIMITATIONS, CONCLUSIONS AND IMPLICATIONS FOR FURTHER RESEARCH

7.1 INTRODUCTION

In this chapter, a brief overview is presented of the whole study. This includes chapter overviews followed by a discussion of the findings of the research from a theoretical perspective, as well as a deliberation on the limitations encountered in the study and propositions made for further enquiry.

Chapter 1 problematised and motivated the study in a research context, highlighting the need for construction and validation of a hybrid instrument of organisational communication satisfaction, based on theory, previous research and existing psychometric resources. Chapter 2 demonstrated the nature of organisational communication satisfaction as a construct at some length and in some depth, using insights obtained from interdisciplinary work, representing fields such as communication, psychology, economics and philosophy, and spanning a long period of intellectual history. Chapter 3 advanced the diverse conceptualisations of organisational communication satisfaction and isolated a set of constructs ideal for inclusion in a measurement instrument of communication satisfaction in a collectivist organisational setting such as Ethiopia's public service. In chapter 4, organisational communication auditing was introduced and the various functions of the practice highlighted, together with the areas communication auditor professionals address as key concerns. The chapter also developed and presented an overarching theory of organisational communication auditing. Chapter 5 selected and introduced structural equation modelling methodology comprising exploratory factor analysis and the more novel confirmatory factor analysis as the chief tools for the development and validation of a hybrid measure of communication satisfaction. In chapter 6, findings of the three interrelated components of the study: the pilot, the exploratory factor analysis and the confirmatory factor analysis, were reported.

In this present chapter following on from the chapter summaries, first a brief recap of the findings is presented in relation to EFA and CFA as employed in the study. Then the steps from model specification to respecification are briefly reviewed, followed by a validation report that includes all major forms of instrument validity as addressed. The findings are then discussed at some length in relation to theory, the empirical literature and the collectivist cultural context which includes that of Ethiopia. Limitations are then acknowledged and avenues for future research indicated.

7.2 SUMMARY OF THE EXPLORATORY FACTOR ANALYSIS

The results of the exploratory factor analysis are presented below and discussed first in relation to the hypotheses and then with regard to theory and previous research. The EFA results are then followed by a reflection on the CFA outcomes - the default model and the nested models.

7.2.1 Results of the exploratory factor analysis

Following the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity, the six factors originally proposed were confirmed suitable for EFA to proceed. Tests were later made of the six hypotheses as outlined below.

i) Organisational communication satisfaction responses can be explained by six factors, namely horizontal communication, personal feedback, supervisory communication, communication climate, relational trust and job satisfaction.
ii) Organisational communication satisfaction is a measure of one general satisfaction factor rather than six dimensions.
iii) Organisational communication satisfaction is a two-dimensional construct.

iv) Each item-pair measure has a nonzero loading on the communication satisfaction dimension that it was designed to measure and a zero loading on all other dimensions.
v) The communication satisfaction dimensions consistent with the theory are correlated.
vi) Errors associated with each measure are uncorrelated.

In relation to the hypotheses as outlined under sections 1.3.2 and 5.5 the findings show that the hypothesis that organisational communication satisfaction can be explained by six factors is rejected, as is the hypothesis that organisational communication satisfaction is best explained as a single general factor. A rival hypothesis that communication satisfaction is best represented as a two-factor construct is accepted. Because of cross-loads, the hypothesis that each item has a nonzero loading on the communication satisfaction dimension that it was designed to measure and a zero loading on all other dimensions was not tenable. The hypothesis that errors are uncorrelated was rejected based on the CFA models which suggested error paths to improve model fit as shown under section 7.2.2.3. However, the hypothesis that the communication satisfaction dimensions consistent with the theory are correlated was found to be acceptable as the interfactor correlations were high.

The parallel analysis output was consistent with current research (Gray & Laidlaw 2004: 442) on communication satisfaction factors as well as Putti et al.'s study (1990:45) that communication satisfaction is best conceptualised in terms of informational and relational domains. As Annexure P shows, these two factors capture about 54% of the variance accounted.

The two-factor solution obtained based on the parallel analysis guided extraction led to the formation of a 17-item scale with the following breakdown and allocation of items:

Relational factor = 1, 5, 7, 11, 13, 14, 21, 28 & 29 (9 items)
Informational factor = 3, 4, 9, 10, 16, 19, 20 & 26 (8 items)

7.2.2 Results of the confirmatory factor analysis

The items of the EFA-generated organisational communication satisfaction scale were renumbered consecutively and the scale was cross-validated on a new sample of 288 civil servants from the Addis Ababa City Administration.

A baseline model was specified with two constructs derived from the exploratory factor analysis. The relational and informational satisfaction factors had each nine and eight indicators, respectively. The sample of 277 was far beyond the 150 per model recommendation for communication science researchers (Holbert & Stephenson 2002: 536).

7.2.2.1 Model identification

The two-factor default model was overidentified with 118 degrees of freedom with:

- number of distinct sample moments: 170
- number of distinct parameters to be estimated: 52
- degrees of freedom (170 - 52): 118

Therefore, it was possible to proceed with model fitting since there were no problems with structural and empirical identification.

7.2.2.2 Model assessment

Overall model fit as assessed using global fit indices (e.g. model chi square) as well as incremental fit indices (e.g. root mean square error of approximation of .08) were inadequate to accept the model. Model revision was therefore necessary.

7.2.2.3 Respecification

Modification indices were consulted based on which two error paths were created across the two constructs. The creation of paths was guided by earlier research and conceptual considerations. The constraints imposed on the baseline model led to model fit improvements.

A one-factor nested model was also tested but was not found to be better fitting to the data. Nor was it conceptually more powerful and was therefore dropped.

7.3 MODEL VALIDATION

The respecified model underwent validation at different levels. All six aspects of validity, namely content validity, construct validity, factorial validity, reliability, convergent validity, discriminant validity and nomological validity, were found to be adequate (see Table 6.6 and Annexures S and Z).

7.4 DISCUSSION AND INTEGRATION OF RESULTS AND THEORY

This section discusses the results obtained in light of the theoretical, empirical and methodological issues relating to communication satisfaction addressed in previous chapters. The relevant points raised in earlier studies are particularly important to understand any conceptual, psychometric and methodological advances made.

7.4.1 Previous studies

According to Patil et al. (2008:162), a particular theory would be considered more robust if it can explain phenomena using fewer constructs than competing theories. This study has come up with two constructs that explain the contested area of communication satisfaction. The majority of previous studies showed that the factor structure was by no means stable and invariance across organisations

and studies was not reported. This study is consistent with the findings of Gray and Laidlaw (2004:442) and to a degree with Pincus (1986:425) who came up with a two-factor and a three-dimensional outcome of communication satisfaction, respectively.

Nevertheless, the two studies deserve to be critiqued on methodological grounds. Gray and Laidlaw (2004:442) skipped the EFA stage and went directly to conducting a confirmatory factor analysis, whereas Worthington and Whittaker (2006:831) in their extensive review of scale development research say they found the use of CFA before EFA to be injudicious. As Hurley, Scandura, Schriesheim, Brannick, Seers, Vandenberg and Williams (1997:669) have also indicated, methodologists have expressed concern over researchers automatically turning to CFA without considering the pitfalls of skipping EFA.

Indeed, previous EFA studies on communication satisfaction and the factorial structure instabilities reported (e.g. Clampitt and Girard 1987) show how sidestepping EFA can lead to misleading CFA results. EFA is essential before CFA can proceed because the measurement model first has to be carefully recovered (Gerbing & Hamilton 1996:71). When there is no strong theory as in communication satisfaction first, EFA may be used to explore factor structures and later CFA may be employed to confirm a factorial structure having firm hypotheses (Schmitt 2011: 315).

The findings of Gray and Laidlaw (2004:442) also deserve another criticism from a methodological position for their unreflecting use of congeneric models, which are measurement models that are least restrictive. In much of the literature, congeneric models have been critiqued on several grounds. Chief among the criticisms is that they often lead to biased estimates. This bias is related to the assumption of the models that constructs are correctly measured as one-dimensional structures, which makes no allowance for error, which is all too frequent. As Anderson and Gerbing (1984:578) have shown, items often

measure more than the intended construct and invalid components are pervasive, causing serious measurement error.

As used by Gray and Laidlaw (2004:431-32), in their communication satisfaction research designed to “improve the measurement of communication satisfaction”, congeneric modelling ignores systematic measurement error that constitutes invalid components, causing inflated estimates. In context, communication satisfaction measures may be contaminated by job satisfaction, pay satisfaction, life satisfaction as well as random error (Monette, Sullivan & DeJong 2011:124), which congeneric models fail to account for. In a valid research design, we typically have “measure = true satisfaction + systematic error (bias) + random error satisfaction” (Vavra 1997:164). Congeneric models as used in communication satisfaction fail to address the components of random and systematic error as presented by Vavra (1997:164).

But failing to model error can lead to theoretical conclusions becoming ill-founded (Cote & Greenberg 1990:426). In fact, Gray and Laidlaw (2004:431-32) seem to have failed to note that factor solutions revolving around the subject of communication satisfaction have been unstable and contingent on organisations studied (Clampitt & Girard 1987:14). This casts doubt on the adequacy of their ‘improvement’ of the psychometrics of communication satisfaction.

Problems can also arise when principal components analysis is used instead of exploratory factor analysis. The two are often taken as the same by some researchers, when in fact they are not. We can exemplify the wrong use of principal components analysis using the work of Pincus (1986) who found a three-dimensional structure of communication satisfaction. The dimensions Pincus (1986:425) identified are misread in much of the literature. First, he did not use EFA but principal components analysis, which does not produce factors as inputs for CFA but merely comes up with components that simply reduce the data. Principal components analysis also ignores error variance, but EFA takes it

into account (Rietveld & Van Hout 1993:267). Second, Pincus's indeterminate relational/informational component is simply unusable since a factor has to be neat and free from significant conceptual overlaps. The individual informational and relational units are themselves not factors per se, since EFA was not employed.

A similar methodological problem can be noted in the American study on the factor structure of communication satisfaction which used principal components analysis instead of exploratory factor analysis, ignoring the important statistical and assumptive differences between the two (Mount & Back 1999:406). The factor structure that emerged (which did not reproduce earlier models of communication satisfaction) was inherently based on decomposing a correlation matrix rather than adjusted correlation matrices, making the interpretability of derived components suspect (Suhr 2009: 3). A major weakness is that principal components analysis fails to discriminate between unique variance and shared variance in addition to being conceptually unguided (Costello & Osborne 2005: 2).

In addition to coming up with a valid and reliable organisational communication satisfaction scale based on the organisational-cultural context of a collectivist civil service, the present study overcomes the methodological limitations of the above studies. It followed the sequential EFA-CFA procedure as recommended in the SEM literature and generated a model with valid theoretical support and a high degree of parsimony. The parsimony of this model is evident in the limited list of propositions it makes. It is limited to just two constructs - relational and informational - that could also be taken as nomologically parsimonious.

It is based on the befitting dictum that "plurality is not to be posited without necessity" and "what can be explained by the assumption of fewer things is vainly explained by the assumption of more things" (Boehner 1957: xxi). Indeed, this model posits parsimoniously that communication satisfaction is predicted by just two constructs, which are relational and informational latent variables.

The meta-theoretic approach of Meintjes and Steyn (2006:157) to communication satisfaction indicates that in a symmetrical communication environment with adequate relational and informational inputs, there can be a workplace-positive bond. This bond is enhanced by a flow of information which aids job performance and relational closeness which helps the worker feel valued.

7.4.2 Organisational communication satisfaction in the context of the Ethiopian collectivist culture

In collectivist societies like Ethiopia's, communication somehow assumes a different character and what satisfies the workforce in terms of communication can be to a degree different. As the outcome of the EFA in this study showed, Ethiopian civil servants do not seem to differentiate between the originally proposed six constructs which each measure a different aspect of communication.

For Ethiopian civil servants who might be taken as sharing relevant value similarities with collectivist societies around the world, communication is hugely synonymous with relationship and to a smaller degree to information sharing. This condition is consistent with studies that have shown that Ethiopian organisations bear the hallmarks of the dominant culture in the country (Mekonnen & Mamman 2004: 115). Further evidence comes from Wasbeek (2004:167) who demonstrated that Ethiopian society is relationship and intimacy-oriented and that relationships are considered far more valued than innovation or production, as in other societies in Africa, Asia and Latin America.

Wasbeek's findings (2004:167) also confirm Hofstede's classification of the dominant culture in Ethiopia as characterised by high power distance and uncertainty avoidance (Gudykunst & Lee 2003:20), features shared internationally. Consequently, organisational power is centralised and supervisor

personnel are distant, as is reflected in patterns of communication that are asymmetric and paper-based, with formal and rigid communication practices that overemphasise rules and regulations (Mekonnen & Mamman 2004: 115). The asymmetry is also related to uncertainty and mistrust that can result from power being concentrated in the hands of management in a way that would naturally discourage open communication and interchange, as these could result in the perceived erosion of the power of the leadership.

High power distance organisations can lead to communication apprehension for the average worker who may be “uninvolved, inattentive, and disengaged” (Madlock 2012:171) in tune with the norm organisationally imposed. Organisational communication in power distance endorsing work settings can prove to be an ordeal and lead to fear and isolation. For such subordinates in high power distance workplaces, “silence can exact a high psychological price on individuals, generating feelings of humiliation, pernicious anger, resentment” (Perlow & Williams 2003: 52). Clearly, power distance can have negative consequences for the communication satisfaction of a subordinate. It is among equals that more communication activity can be expected, embedded in and powered by a climate of informality and freedom from power-caused inhibitions.

The low levels of communication satisfaction reported in the present study are reflections of the power distance, high uncertainty and asymmetrical communication that characterise the Ethiopian civil service as a reflection of the country’s long history of feudalism and more recent military rule (Chane 2001:7). The first bureaucrats were feudal lords and their power distance and their communication styles remain in residual forms and still affect communication outcomes. Kowtowing of the kind in Chinese imperial protocol was the norm as a classic reflection of power distance. In the modern work setting power distance is related to the amount of information that may be shared between supervisors and subordinates as well as the manner in which it is shared (Białas & Gdyni 2009:108), which has implications for communication satisfaction.

The extant literature does not seem to relate communication to human resource management theory from a broader cultural perspective. Communication viewed from such a perspective would include task, social and innovation, with all channels being employed and the informal style of communication being predominant (Miller 2003:87). In a study of government journalists in Ethiopia, Gebru (2006: 41) found that social communication was the most important factor from a litany of job factors lending support to the theory that affiliation is more important in collectivist cultures and their organisations (Varona 2002:12).

Thus in a Guatemalan study, Varona (2002:10) found that functions of communication related to production, innovation and maintenance were not present in the conceptualisation of communication satisfaction. The relationship factor was overridingly important to reduce uncertainty and to feel sufficiently affiliated to a collective. In this study, more factors loaded on the relational factor and the loadings for this construct were particularly high, indicating how important relationship is to communication satisfaction to the Ethiopian worker. At the theoretical level, this finding agrees with the emerging view that communication is primarily about relating and not about imparting information and "such a conceptualisation helps us out of the now stale debates of Western philosophy about the nature of communication" (Condit 2012:1).

At the very least there should be a realisation that cultural context matters and that measures have to reflect conceptualisation that attends to or reflects cultural contexts. However, despite the need for critical reflection on the use of Western constructs in the mistaken assumption of boundless universality, researchers often transplant American and European tools with attendant conceptualisations into a non-Western context. On the use of "borrowed scales", Douglas and Nijssen (2002) argue that often in disregard of apparent contextual bounds, American and European instruments are applied in differing contexts. There is, however, more heed to be paid to equivalence in the use of constructs. Construct

equivalence would mean that a particular facet holds the same meaning across contexts. Despite the presence of universals, there are also contextual bounds.

Only actual measurement shows construct cross-cultural equivalence. Measurement equivalence would require that the instrument in use is weighed similarly with regard to the assignment of response category values. Scalar equivalence would presuppose that a particular response would be accessed in the same semantic way as the parent response sets across differing contexts (Poortinga 1989: 745; Van de Vijver & Leung 1997: 65). Thus “agree strongly” or “very dissatisfied” should mean the same cross-culturally. Expert reviews should help in judgements that a hybrid measure does tap most pivotal constructs that are not significantly socio-culturally embedded (Douglas & Nijssen 2002: 3).

Indeed, psychometric recommendations that constitute core ingredients or constructs should help to produce a more robust scale that is not too contextual and that deserves to be taken seriously. The nature of context must not be allowed to preclude universals. The earlier quoted Guatemalan study in communication satisfaction, while indicating the collectivist/individualist divide, also confirmed that there is substantial agreement on what constitutes communication satisfaction. More recent studies are more questioning and call for more research (Savolainen 2001: 14).

As may be predicted, collectivist culture organisations may more significantly value the relational aspect of communication than the informational. They may also be more emotional in their communication. As Oliver (1971: 3) noted quite some time ago, “the east is not the west. Cultures differ, and minds, feelings, and intensions in differing societies intermesh in differing ways”. Critical of the Eurocentric approach, Shuter (2011:121-22) argues that the various cultural philosophical, historical, political and social contexts cannot be ignored in any respectable study of communication.

Shulruf, Hattie and Dixon (2011: 52) have noted that there are cross-cultural differences that are accompanied by psychological dimensions, foremost among these being the collectivist individualist divide. A meta-analytic review by Oyserman, Coon and Kemmelmeier (2002: 65) showed that collectivism generally manifests itself in dutifulness to a group, relational strength, affinity seeking and valuing group harmony as opposed to individualism which is chiefly characterised by emphasis on independence, privacy, competitiveness and direct communication.

Culturally based differences in perception and emotion as well as expression of emotion may have implications for how they should be measured across cultures as studies in cross-cultural psychology would show (Provaznik 2012:1). Also important is the issue of methodological approach to communication evaluation and how it may be affected by differing cross-cultural contexts as, for instance, reflected in how constructs are measured differently across cultures. A related example may be whether particular constructs are one-dimensional in one culture and multidimensional in another. In short, as the findings of this study seem to indicate, construct dimensionality may be culture-dependent and may have to be approached from a different psychometric base that requires tailored instrumentation.

Constructs are not necessarily stable even in the same cultural context as Western studies of communication satisfaction have shown using the example of the variability of the factor structure of communication satisfaction across organisations and over time. The findings of this study also point to the elusive nature of constructs as noted by early psychologists and in particular Cronbach and Meehl (1955: 290). That perception of the elusiveness of constructs continues but with the progress over the last 50 years there is now better management and grasp of the theoretical constructs, given advances in software development and accessibility. But as Smith (2005: 308) notes, this does not rule out “the ongoing nature of theory building, theory revision and scientific criticism”.

In fact, validation is often a longitudinal issue, and not a one-time action of quantification. Studies have shown that factor structures can change contextually as do correlations depending on different samples (e.g. factor structure of organisational communication satisfaction) (Downs et al. 1994: 72). Construct validation is indeed more a process than an outcome.

Inherently, dynamism and fluidity are traits of validation. Often the guiding theories in which content is embedded are contemporary and likely to change over time. Thus content domain and dimensions of many theoretical concepts change longitudinally and with this the pertinence as well as representative quality of the content elements for a particular construct evolve (Haynes, Richard & Kubany 1995:244). As Cronbach (1971:38) observed, content validity tends to degrade progressively with the lapse of time, disconfirmed by new data and changed conceptualisation about the target construct. The content of communication satisfaction measures may thus be said to be dependent on the contemporary theories of relevance as well as the data gathered in a given temporal frame.

From the dynamic view of constructs, Haynes et al. (1995:245) have drawn the following conclusions about the nature of content validity:

- Measures of content validity cannot remain unchanged over time.
- There is a need for a periodic examination of the content validity of psychometric instruments.
- Measures must be revised to suit changes in the focal construct.
- Unrevised instruments may continue to lead to faulty inferences about revised measures.

7.5 LIMITATIONS

Every study is likely to be plagued by some kind of limitation. Stating limitations is not merely an integrity issue, or an ethical concern. It is an integral part of transparent scholarship. According to Ioannidis (2007:324), it is necessary to state limitations so that research findings are placed in context and interpreted against criteria of scientific validity. Progress comes when limitations fuel and justify further research. Limitations can relate to all elements of research. This section presents the limitations that are encountered and identified in this study pertaining to the literature, data, methodology and theory.

7.5.1 Literature

The empirical and theoretical literature on the subject of communication satisfaction has been predominantly Western. In particular, the studies cited focused on the American experience although there are also a few references to Latin America and Australasia. The relevant African reality is largely unknown or undocumented. There are certainly a few communication audit studies from South Africa, but only one on precisely the topic of organisational communication satisfaction (Meintjes & Steyn), and this relates to the system of higher education in the country and that is inherently different from the civil service proper. There was no previous research available on the topic regarding Ethiopia. The absence of relevant local literature/scholarship was a limitation in the sense that the present findings could not be discussed in context.

7.5.2 Data issues

Surveys have their own limitations that impact on the data gathered. Most prominently, the use of data collected at a single point in time precludes the possibility of longitudinal changes being recorded. This is particularly relevant to surveys that try to measure satisfaction, which is inherently not a stable quality. A

snapshot of the situation of communication satisfaction as captured by a survey may not be representative of the perceptual fluctuations of a respondent over a period. The questionnaire did not have an item asking longitudinal assessment of the respondents' experience of communication satisfaction.

The validity of the data may also have been affected to a degree. It is known that the motivational level, honesty and research attitude of respondents can affect positively or negatively the quality of the data they supply. For instance, unmotivated respondents may consider the time taken to complete the questionnaire as a waste of time and give inattentive responses. Also, a few responses may be affected by social desirability because it may be argued that some categories of respondents may not wish to project themselves as dissatisfied, especially in collectivist cultures such as Ethiopia's.

Some of the items on the questionnaire, which was developed based on Western literature, may have appeared to be redundantly measuring the same thing to the Ethiopian respondents since, as was discussed in the literature section, questionnaire response is often affected by cultural background which may not appreciate subtleties. It was probably this cross-cultural situation that may have caused the post hoc modification that was made in terms of interfactor correlation of disturbance terms. In other words, the respecification of the initial model was probably due to response patterns affected by the cross-cultural perceptual divide.

This later limitation could have been addressed by further probing at a later stage using additional data or a larger pilot.

Thus the picture represented by the data should be interpreted in the light of this limitation.

In addition, the considerable imbalance between figures of male and female respondents was such that invariance model testing across gender was ruled out. However, scalar, metrical and structural differences may be observed.

7.5.3 Methodology

Structural equation modelling is not a perfect set of methods. It does not guarantee that data are perfect. Irrespective of the power of SEM, numerous categories of errors may impact data, but most of all non-sampling errors are common and difficult to control. Two categories of non-sampling errors are particularly noted. Random non-sampling errors may have occurred because respondents could have varying interpretations of the questions asked. Respondents may also have struggled to give particular values or may have been undecided between, say, slightly agree and slightly disagree due to the seven-point scale which was different from the five-point scale they were used to. Nonrandom sampling errors may have occurred due to nonresponses or unusable responses (which had to be discarded) because stepwise deletion is problematic in structural equation modelling. But there was no way of knowing whether respondents supplied incorrect information. Such nonsampling errors are important but neither easy to gauge nor prevent.

The EFA methodology can also have its limitations in that cross-loads can be troubling, as observed in the present project. It is impossible to rely entirely on the statistical/EFA output, and subjective/substantive involvement is indeed necessary. A more interpretable structural solution is therefore a combination of conceptual and statistical considerations. As was observed in this study, the EFA solution was not conceptually clean, but cleaner than was reported by Pincus (1986: 413). His solution included three dimensions, one of which was a mixture of relational and informational variables. The mixed factor, however, should be unacceptable based on psychometric principles because each factor must be

able to represent “an area of generalization which is qualitatively distinct from that represented by any other factor” (Gorsuch 1983:2).

The methodological problems associated with self-report questionnaires as used in organisational studies may also pertain to this study. The susceptibility of scales to common method variance bias may have implications for the soundness of conclusions made based on the correlations discovered. The monomethod bias (Fiske 1987:287) introduced by the use of a questionnaire can indeed introduce a validity problem. This is exemplified by ‘fear of reprisal’ by organisational members who harbour the idea of at least a remote possibility that the employer may have access to their self-report data (Donaldson & Grant-Vallone 2002:248). The limitations pertaining to common method variance may therefore have a role to play in the present study.

7.5.4 Theory

Considerable research on communication satisfaction is guided by theories of organisation that have a bearing on communication. There are indeed theories of communication that can explain organisational phenomena, but they tend to be general and furthermore difficult to falsify. The present study did not find an explicit theory of communication with dimensional and interdimensional details to guide the study. It is possible to use reflections of the human relations school, focus on ‘personhood’ as opposed to the idea of the workforce as ‘homoeconomicus’ as well as locate communication satisfaction within the human resource management theory. What makes the communication wing of the human resource management theory (Meintjes & Steyn 2006:158) relevant is that it accords management an important role in terms of influencing the communication satisfaction of staff. However, as Miller (2003:56) correctly observes “the human resource approach can be difficult to pin down”. The theoretical limitation, as identified in this study, is that the constructs are not delineated enough to lead to theory rejection.

7.6 CONCLUSIONS

The following conclusions are made based on the context of the discussion of the instrument development and validation:

1. Communication satisfaction for Ethiopian civil servants comprises a relationship dimension as well as an information factor.
2. The relationship-focused factor of communication satisfaction seems to be a more important factor.
3. The relational satisfaction construct has better internal consistency as measured by Cronbach's alpha (α).
4. The organisational communication satisfaction scale is highly reliable and valid measured against the postulated criteria of validity: content, construct, convergent, discriminant and nomological.
5. The correlation between the two dimensions of relational communication satisfaction and informational satisfaction is very high, suggesting perhaps a degree of conceptual overlap.
6. A two-factor solution with correlated disturbance terms is the most interpretable of all models tested.
7. There is theoretical support for the hybrid organisational communication satisfaction scale.

7.7 IMPLICATIONS FOR FURTHER RESEARCH

The limitations outlined in this chapter indicate avenues for future research. What arises most importantly as a research recommendation from this study is the need for replication of the model among a different population in multiple cultural contexts where a contingency approach could be designed to test the stability of the factor structure that has resulted from this study. The stability of the factor structure could also be tested in a cross-sectional design involving demographic groups such as those based on gender and age as well as status. Future

research may also consider the limitations of questionnaire designs and use longitudinal communication satisfaction data to model communication satisfaction.

The present study did not undertake MANOVA since the focus was on theory testing. But future research may include this procedure to lead to broader understanding of communication involving correlates and determinants. Prime candidates among these determinants may be communication competence of supervisor as well as leadership style.

Mediation analysis, not performed in this study due to the limited factors involved, may also be conducted to see how the various variables relate to communication satisfaction in a model with more interacting factors and greater complexity.

SOURCES CONSULTED

Adler, R, Rosenfeld, L & Proctor, R. 2001. *Interplay: the process of interpersonal communication*. Oxford: Oxford University Press.

Aggarwal-Gupta, M & Kumar, R. 2010. Look who's talking! Impact of communication relationship satisfaction on justice perceptions. *VIKALPA* 35(3):55-65.

Ahmed, A. 2006. Auditing communication satisfaction among academic staff: an approach to managing academic excellence. *The Business Review* 15(1):330-333.

Ahmed, S. 2009. Methods in sample surveys. [O]. Available: www.ocw.jhsph.edu/courses/statmethodsforsamplesurveys/PDFs/Lecture5.pdf Accessed on 2011/04/18.

Akkirman, A & Harris, L. 2005. Organisational communication satisfaction in the virtual workplace. *The Journal of Management Development* 24(6):397-409.

Alderson, P. 2012. Ethics review of social research-ten topics for social researches to consider. [O]. Available: http://www.leeds.ac.uk/educol/documents/00001481.htm Accessed on 2012/03/04.

Allen, B, Tompkins, P & Busemeyer, S. 1996. Organisational communication, in *An integrated approach to communication theory and research,* edited by M. Salwen and D. Stacks. Mahwah: Lawrence Erlbaum Associates: 383-398.

American Psychological Association (APA). 2002. Publication manual of the American Psychological Association. [O]. Available: www.amazon.com/Publication-Manual-American-Psychological-Association Accessed on 2011/09/17.

Anastasi, A. 1988. *Psychological testing*. New York: Macmillan.

Anderson, A. 2012. Role of communication in employee motivation. [O]. Available: http://smallbusiness.chron.com/role-communication-employee-motivation-11914.html Accessed on 2012/05/03.

Anderson, J & Gerbing, D. 1988. Structural equation modelling: a review and recommended two-step approach. *Psychological Bulletin* 103(3):411-423.

Anderson, M & Martin, M. 1995. Why employees speak to coworkers and bosses: motives, gender and organisational satisfaction. *Journal of Business Communication* 32(3):249-265.

Andrews, P & Herschel, R. 1998. *Organisational communication: empowerment in a technological society*. Houghton: Mifflin.

Anglim, J. 2007. Structural equation modelling. [O]. Available: http://web.psych.unimelb.edu.au/jkanglim/IntroductiontoSEM.pdf Accessed on 2011/02/05.

Antoncic, JA & Antoncic, B. 2011. Employee satisfaction, intrapreneurship and firm growth: a model. *Industrial Management & Data Systems* 111:589-607.

Antonis, N. 2005. Communication audit as an integrated communication measurement instrument: a case study. Unpublished MA thesis. Pretoria: University of South Africa.

Aragon, SJ & Gesell, SB. 2003. Patient satisfaction theory and its robustness across gender in emergency departments: a multigroup structural equation modelling investigation. *American Journal of Medical Quality* 18(6):229-241.

Arbuckle, L. 1996. Full information estimation in the presence of incomplete data, in *Advanced structural equation modelling: issues and techniques*, edited by GA. Marcoulides and RE. Schumacker. Mahwah, NJ: Lawrence Erlbaum Associates: 325-366.

Argyris, C. 1986. Skilled incompetence. *The Harvard Business Review* 64(5):74-80.

Argyris, C. 1993. Beware of skilled incompetence. [O]. Available: http://www.winstonbrill.com/bril001/html/article_index/articles/51-100/article60_body.html Accessed on 2012/04/02.

Armstrong, JS & Overton, TS. 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* 14:396-402.

Aron, A & Aron, N. 1999. *Statistics for psychology*. Second edition. Upper Saddle River, NJ: Prentice Hall.

Ashkansay, N & Nicholson, G. 2003. Climates of fear in organisational settings: construct definition, measurement and a test of theory. *Australian Journal of Psychology* 55(1):24-29.

Ashton, W. 2006. Instructions for cleaning a k. [O]. Available: http://www.sbaer.uca.edu/research/1998/SBIDA/98sbi178.txt 5/7/200l4 Accessed on 2009/10/05.

Avtgis, A. 2000. Unwillingness to communicate and satisfaction in organisational relationships. *Psychological Reports* 87(1):82-84.

Aziri B. 2011.Job satisfaction: a literature review. *Management Research and Practice*, 3(4): 77-86.

Babbie, E. 1992. *Practicing social research*. Belmont, CA: Wadsworth.

Babrow, AS, Kasch, CR & Ford, LA, 1998. The many meanings of uncertainty in illness: toward a systematic accounting. *Health Communication* 10:1-23.

Babu, A, Singh, Y & Sachdeva, R. 2012. Establishing a management information system. [O]. Available: http://www.fao.org/docrep/W5830E/w5830e0k.htm Accessed on 2011/03/10.

Badaracco, C. 1998. The politics of communication audits. *Public Relations Quarterly* 33(3):27-31.

Bagozzi, R. 1983. Issues in the application of covariance structure analysis: a further comment. *Journal of Consumer Research* 9:449-450.

Baker, K. 2000. Organisational communication. [O]. Available: http://www.au.af.mil/au/awc/awcgate/doe/benchmark/ch13.pdf Accessed on 2012/03/03.

Baloglu, M. 1999. A brief introduction to structural equation modelling techniques: theory and application. [O]. Available: http://www.eric.ed.gov/PDFS/ED438300.pdf Accessed on 2010/11/02.

Balogun, MJ & Mutahaba, G. 1999. Redynamising the African civil service for the twenty-first century: prospects for a non-bureaucratic structure, in *Bureaucracy and the alternatives in world perspective,* edited by K. Henderson and O. Dwivedi. Macmillan: London: 190-216.

Baptiste, R. 2008. Tightening the link between employee wellbeing at work and performance: A new dimension for HRM. *Management Decision*, 46(2): 284-309.

Barber, B. 1983. *The logic and limits of trust.* New Brunswick, NJ: Rutgers University Press.

Barker, R & Angelopulo, G. 2006. *Integrated organisational communication.* Lansdowne: Juta.

Barki, H., & Hartwick, J. 1994. User participation, conflict, and conflict resolution: The mediation roles of influence. *Information Systems Research 5*(4):422-438.

Barrett, PT & Kline, P. 1981. The observation to variable ratio in factor analysis. *Personality Study in Group Behavior* 1:23-33.

Baskin, O, Aronoff, C & Latimore, D. 1997. *Public relations: the profession and the practice*. New York: McGraw Hill.

Becerra, M & Gupta, AK. 2003. Perceived trustworthiness within the organization: the moderating impact of communication frequency on trustor and trustee effects. *Organization Science* 14(1):32-44.

Bentham, J. 1907. *An introduction to the principles of morals and legislation*. Oxford: Clarendon Press.

Bentler, M. 1995. *EQS.* Structural equations program manual. [O]. Available: www.amazon.com/EQS-Structural-Equations-Program-Manual/.../1885898029 Accessed on 2011/06/21.

Bentley, J, Coates, H, Dobson, I, Goedegebuure, L, & Meek, L. 2013. *Job Satisfaction around the Academic World*. London: Springer.

Berger, C. 1986. Uncertainty outcome values in predicted relationships. *Human Communication Research* 13:34-38.

Berger, C & Calabrese, R. 1975. Some exploration in initial interaction and beyond: toward a developmental theory of communication. *Human Communication Research* 1:99–112.

Berger, R & Gudykunst, B. 1991. Uncertainty and communication*. Progress in Communication Sciences* 10:21-66.

Berne, E. 1964. *Games people play*. New York: Gross Press.

Białas, S & Gdyni, A. 2009. Power distance as a determinant of relations between managers and employees in the enterprises with foreign capital. *Journal of Intercultural Management* 1(2): 105–115

Bishop, G. 2012. Item order randomisation. [O]. Available: http://srmo.sagepub.com/view/encyclopedia-of-survey research-methods/n255.xml
Accessed on 2012/05/06.

Black, K. 2004. *Business statistics for contemporary decision making*. New Delhi: Wiley.

Boehner, P. 1957. *Ockham: philosophical writings*. London: Thomas Nelson and Sons.

Bollen, KA. 1987. Outliers and 'improper solutions'. *Sociological Methods and Research* 15:375-84.

Bollen, KA & Lennox, R. 1991. Conventional wisdom on measurement: a structural equation perspective. *Psychological Bulletin* 110(2):305-314.

Bollen, KA & Stine, A. 1992. Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods and Research* 21(2):205-229.

Bolman, G & Deal, E. 1991. Leadership and management effectiveness: a multi-frame, multi-sector analysis. *Human Resource Management* 30:509-534.

Bolton, N. 1991. An exploratory investigation of questionnaire pretesting with verbal protocol analysis. *Advances in Consumer Research* 18(2):558-565.

Boomsma, A. 1982. The robustness of LISREL against small sample sizes in factor analysis models, in *Systems under indirect observation: causality, structure, prediction (part 1*), edited by KG. Jöreskog and H. Wold. Amsterdam: North-Holland: 149–173.

Boon, SD & Holmes, JG. 1999. Interpersonal risk and the evaluation of transgressions in close relationships. *Personal Relationships* 6:151-168.

Booth, A. 1988. *The communications audit: a guide for managers*. London: Gower.

Botan, C. 1997. Ethics in strategic communication campaigns: the case for a new approach to public relations. *Journal of Business Communication* 34:188–202.

Botha, H & Boon, J. 2003. The information audit: principles and guidelines. *Library Review* 53(1):23-38.

Bowen, N & Guo, S. 2012. *Structural equation modelling*. Oxford: Oxford University Press.

Brashers, D. 2001. Communication and uncertainty management. *Journal of Communication* 51(3):477–497.

Briggs, R, Reinig, B & De Vreede, G. 2008. The yield shift theory of satisfaction and its application to the IS/IT Domain. *Journal of the Association for Information Systems* 9(5):267-293.

Brown, TA. 2006. *Confirmatory factor analysis for applied research*. New York: Guilford Press.

Buchanan, S & Gibb, F. 1998. The information audit: an integrated strategic approach. *International Journal of Information Management* 18(1):29-47.

Buchholz, W. 2012. Open communication climate. [O]. Available: http://atc.bentley.edu/faculty/wb/printables/opencomm.pdf Accessed on 2012/05/04.

Burchell, BJ & Marsh, C. 1992. The effect of questionnaire length on survey response*. Quality and Quantity* 26:233-244.

Burns, N & Grove, SK. 2004. *The practice of nursing research: conduct, critique, and utilization.* Fifth edition. Philadelphia, PA: Elsevier.

Burton, L & Mazerolle, S. 2011. Survey instrument validity part 1: principles of survey instrument development and validation in athletic training education research. *Athletic Training Education Journal* 6(1):27-35.

Butler, K. 1991. Towards understanding and measuring conditions of trust: evolution of conditions of trust inventory. *Journal of Management* 17:643-663.

Byrne, B. 2001. *Structural equation modelling with AMOS. Basic concepts, applications, programming.* London: Lawrence Erlbaum Associates.

Byrne, B. 2012. [bmbyrne@comcast.net]. A question on interfactor correlation. Email to Al Gebru on 17/8/2012 (43640540@mylife.unisa.ac.za).

Byrne, Z & LeMay, E. 2006. Different media for organisational communication: perceptions of quality and satisfaction. *Journal of Business and Psychology* 21(2):149-173.

Callahan, R, Fleenor, C & Knudson, H. 1986. *Understanding organisational behavior: a managerial view point*. London: Charles E-Merril.

Carmines, E & McIver, J. 1981. Analyzing models with unobserved variables: analysis of covariance structures, in *Social measurement: current issues*, edited by GW. Bohrnstedt and EF. Borgatta. Beverly Hills, CA: Sage: 65-115.

Carnevale, D. 1995. *Trustworthy government: leadership and management strategies for building trust and high performance.* San Francisco: Jossey-Bass.

Carrel, M & Dittrich, J. 1978. Equity theory: the recent literature, methodological considerations, new directions. *Academy of Management Review* 3(2):202-210.

Carriere, J, Bourque, C & Bonaccio, S. 2007. The role of communication satisfaction as a mediator between an organisation's internal communication systems and two job outcomes: job satisfaction and organisational commitment. [O]. Available: http://luxor.acadiau.ca/library/ASAC/v28/05/05_60.pdf Accessed on 2012/06/13.

Cascio, WF. 1986. *Managing human resources: productivity, quality of work life, profits*. New York: McGraw-Hill.

Chan, Y. 2003. Biostatistics 101. Data presentation. *Singapore Medical Journal* 44(6):208-285.

Chane, P. 2001. The challenges of civil service reform in Ethiopia: initial observation. [O]. Available: http://www.ossrea.net Accessed on 2012/04/23.

Chang, C. 2006. Communication satisfaction in the privatization process: the experience of a Taiwan agency. Unpublished PhD dissertation. Cypress: Touro University International.

Cheney, G, Christensen, LT, Zorn, Jr., TE & Ganesh, S. 2011. *Organisational communication in an age of globalization*. Long Grove, IL: Waveland Press.

Chin, W. 1998. Issues and opinion on structural equation modelling. *Management Information Systems Quarterly* 22(1):8-16.

Clair, RP. 1994. Resistance and oppression as a self-contained opposite: an organisational communication analysis*. Western Journal of Communication* 58(4):235-263.

Clampitt, P & Downs, C. 1987. A critical review of communication satisfaction. [O]. Available: http://webcache.googleusercontent.com/search?hl=am&q=cache:ufLl27AzJrwJ:http://imetacomm.com/wpcontent/themes/Structure%2520Premium%2520White/organic_structure_white/downloads/Metacomm_Satisfaction.pdf%2Ba+critical+review+of+communication+satisfaction&gbv=2&gs_l=hp.12...1467 Accessed on 2011/10/08.

Clampitt, P & Girard, D. 1987. Time for reflection: a factor analytic study of the communication satisfaction instrument. [O]. Available: http://imetacomm.com/wp-content/themes/Structure%20Premium%20White/organic_structure_white/downloads/Metacomm_FactorAnalytical.pdf Accessed on 2012/05/23.

Clampitt, P & Girard, D. 1993. Communication satisfaction: a useful construct? *The New Jersey Journal of Communication* 1(2):84-102.

Cochran, W. 1997. *Sampling techniques.* Third edition. New York: Wiley.

Coffman, J. 2004. Strategic communication audits. [O]. Available: http://www.mediaevaluationproject.org/WorkingPaper1.pdf Accessed on 2009/10/5.

Cohen, J. 1979. Exploring attitude construct validity: or are we? in *Advances in consumer research*, edited by WL. Wilkie. Ann Abor: Association for Consumer Research: 303-306.

Cohen, R. 1997. *Negotiating across cultures: international communication in an interdependent world.* Washington, DC: United States Institute of Peace.

Coleman, A, Norris, C & Preston, C. 1997. Comparing rating scales of different lengths: equivalence of scores from 5-point and 7-point scales. *Psychological Reports* 80:355-362.

Coleman, J. 1990. *Foundations of social theory*. Boston: Harvard University Press.

Comrey, AL & Lee, HB. 1992. *A first course in factor analysis*. Hillsdale, New Jersey: Erlbaum.

Condit, C. 2012. Communication as relationality. [O]. Available: http://www.sagepub.com/upm-data/5421_Shepherd_I_Proof_Chapter_1.pdf Accessed on 2012/05/05.

Conrad, C. 1990. *Strategic organisational communication: an integrated perspective* . Second edition. Fort Worth, TX: Holt, Rinehart & Winston.

Conway, J & Huffcutt, A. 2003. Review and evaluation of exploratory factor analysis in organisational research. *Organisational Research Methods* 6(2):147-168.

Cortez, EM & Bunge, CA. 1987. The communication audit as a library management tool. *Journal of Library Administration* 8:41-63.

Costello, B & Osborne, W. 2005. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation* 10(7):1-9.

Cote, J & Greenberg, R. 1990. Specifying measurement error in structural equation models: are congeneric measurement models appropriate? *Advances in Consumer Research* 17:426-433.

Crampton, M, Hodge, W & Mishra, M. 1998. The informal communication network: factors influencing grapevine activity. *Public Personnel Management* 27(4):569–584.

Crino, D & White, C. 1981. Satisfaction in communication: an examination of the Downs-Hazen Measure. *Psychological Reports* 49:831-838.

Cronbach, J. 1971. Test validation, in *Educational measurement*, edited by RL. Thorndike. Washington, DC: American Council on Education: 443-507.

Cronbach, J & Meehl, C. 1955. Construct validity in psychological tests. *Psychological Bulletin* 52(4):281-302.

Cronkhite, G. 1976. *Communication and awareness*. San Francisco: Benjamin-Cummings.

Cusella, L. 1984. Conceptual issues in organisational communication: elements of a model of conceptual authenticity. *Communication Quarterly* 32(4):293-300.

Daft, RL & Lengel, RH. 1986. Organisational information requirements, media richness and structural design. *Management Science* 32(5):554-571.

Daly, G. 2004. Understanding the barriers to multiprofessional collaboration. [O]. Available: http://www.nursingtimes.net/nursing-practice/clinical-zones/management/understanding-the-barriers-to-multiprofessional-collaboration/204513.article
Accessed on 2012/05/03.

Daniels, T & Spiker, B. 1983. Social exchange and the relationship between information adequacy and relational satisfaction. *The Western Journal of Speech Communication* 47:118-137.

Daniels, T & Spiker, B. 1987. *Perspectives on organisational communication*. Dubuque, IA: W.C. Brown.

Daniels, T, Spiker, B & Papa, M. 1997. *Perspectives on organisational communication*. Dubuque, IA: Brown & Benchmark.

D'Aprix, R. 1996. *Communicating for change – Connecting the workplace with the marketplace*. San Francisco: Jossey-Bass.

Darlington, R. 2012. Factor analysis. [O]. Available: http://www.psych.cornell.edu/darlington/factor.htm
Accessed on 2012/04/03.

Davis, K. 1954. Communication within management. *Personnel* 12(2):23-43.

Davis, K. 1969a. Communication within management. [O]. Available: http://www.analytictech.com/mb119/grapevine-article.htm
Accessed on 2012/06/02.

Davis, K. 1969b. Grapevine communication among lower and middle managers. *Personnel Journal* 48:269-272.

Davis, K. 1981. *Human behavior at work.* New York: McGraw-Hill.

Debela, T. 2012. Civil service in Ethiopia: the marriage between profession and politics. [O]. Available: unpan1.un.org/intradoc/groups/public/documents/un.../unpan044902.pdf
Accessed on 2012/03/05.

Deconinck, J, Johnson, T, Busbin, T & Lockwood, F. 2008. An examination of the validity of the Downs and Hazen communication satisfaction questionnaire. *The Marketing Management Journal* 18(2):145-153.

DeCoster, J. 1998. Overview of factor analysis. [O]. Available: http://www.stat-help.com/notes.html
Accessed on 2010/05/06.

DeCoster, J. 2011. Scale construction. [O]. Available: http://www.stat-help.com/scale.pdf
Accessed on 2011/02/05.

DeCoster, J & Lichtenstein, B. 2010. Integrating quantitative and qualitative methods. *Communication Methods and Measures* 1(4):227-242.

Deetz, SA & Kersten, A. 1983. Critical models of interpretive research, in *Communication and organisations: an interpretive approach,* edited by LL. Putnam and ME. Pacanowsky. Beverly Hills, CA: Sage: 147-171.

Dennis, H. 1974. A theoretical and empirical study of managerial communication climate in complex organisations. Unpublished PhD dissertation. West Lafayette: Purdue University.

Desta, T. 2008. The human resource management functions in Ethiopia: focus on civil service in southern regional government (SNNPRG). [O]. Available: http://oaithesis.eur.nl/ir/repub/asset/7014/Desta%20HRE%202007-08.pdf
Accessed on 2011/05/09.

Devellis, F. 1991. *Scale development: theory and applications*. London: Sage.

DeWine, S, James, A & Walence, W. 1985. *Validation of organisational communication audit*. Honolulu: [S.n.].

DeWinter, F, Dodou, D & Wieringa, PA. 2009. Exploratory factor analysis with small sample sizes. *Multivariate Behavioral Research* 44:147–181.

Dillman, A. 2000. *Mail and internet surveys: the tailored design method*. New York: Wiley.

DiSttefano, C, Zhu, M & Mîndrilă, D. 2009. Understanding and using factor scores: considerations for the applied researcher. [O]: Available: http:// pareonline.net/pdf/v14n20.pdf
Accessed on 2012/01/03.

Donaldson, I & Grant-Vallone, J.2002. Understanding self-report bias in organisational behavior research. *Journal of Business and Psychology* 17(2):245-260.

Dorsey, D. 2012. Intrinsic value and the supervenience principle. *Philosophical Studies* 157(2):267-290.

Douglas, S & Nijssen, E. 2002. On the use of “borrowed” scales in cross-national research: a cautionary note. [O]. Available: http://www. psycnet.apa.org/psycinfo/2003-10801-001
Accessed on 2011./02/05.

Downs, C. 1988. *Communication audits.* London: Scott, Foresman Company.

Downs, C & Adrian, A. 2004. *Assessing organisational communication.* New York: Sage.

Downs, CW & Hazen, MD. 1977. A factor analytic study of communication satisfaction. *Journal of Business Communication* 14(3):63-73.

Downs, C, Dewine, S & Greenbaum, H. 1994. Measures of organisational communication, *in Communication research measures: a source book*, edited by R. Rubin, P. Palmgreen and HE. Sypher. New York: The Guilford Press: 57-80.

Downs, CW, Hazen, M, Quiggins, J & Medley, J. 1973. An empirical and theoretical investigation of communication satisfaction. [O]. Available: www.eric.ed.gov/ERICWebPortal/recordDetail?accno=ED084613
Accessed on 2011/05/23.

Downs, CW, Linkugel, W & Berg, DM. 1977. *The organisational communicator*. New York: Harper & Row.

Duck, S. 2008. (Steve-duck@uiowa.edu). Relational satisfaction theory. Email to A Gebru on 12/7/2008 (amanuel_gebru@yahoo.com).

Dumont, K. 2012. Structural equation modelling [PowerPoint Slides]. [O]. Available: https://db3prd0104.outlook.com/owa/?ae=Item&t=IPM.Note&id=RgAAAABsIEVm15YUTYii3IojktSABwDHr%2b%2bTox4HRKtUC%2bFOTuTkAAAAAACZAACHKVzNorjCS6ZvpRSL3X1hAAAMGTABAAAJ Accessed on 2012/07/15.

Dunbar, R. 2004. *Grooming, gossip, and the evolution of language.* Third edition. Boston: Harvard University Press.

Duncan, D. 1975. *Introduction to structural equation models*. New York: Academic Press.

Du Plooy, GM. 2009. *Communication research: techniques, methods and application*. Lansdowne: Juta

Edwards, JR. 2003. Construct validation in organisational behavior research, in *Organisational behavior: the state of the science* (second edition), edited by J. Greenberg. Mahwah, NJ: Lawrence Erlbaum: 327-371.

Edwards, JR & Bagozzi, R. 2000. On the nature and direction of relationships between constructs and measures. *Psychological Methods* 5(2):155-174.

Ehlers, N. 2003. The relationship of communication satisfaction, job satisfaction and selfreported absenteeism. [O]. Available: http://rave.ohiolink.edu/etdc/view?acc_num=miami1050329102 http://hdl.handle.net/2374.OX/18563 Accessed on 2011/02/08.

Eisenberg, EM. 1984. Ambiguity as strategy in organisational communication. *Communication Monographs* 51:227-242.

Emanuel, M. 1985. Auditing communication practices, in *Inside organisational communication,* edited by C. Reuss and R. Disilvas. New York: Longman: 45-58.

Emerson, R. 1962. Power-dependence relations. *American Sociological Review* 27(1):31-40.

Fabrigar, R, Wegener, D, MacCallum, C & Strahan, J. 1999. Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods* 3:272-299.

Fairhurst, G. 2001. Dualisms in leadership research, in *The new handbook of organisational communication*, edited by F. Jablin and C. Putnam. London: Sage: 379-439.

Falcione, RL, McCroskey, JC & Daly, JA. 1977. Job satisfaction as a function of employees' communication apprehension, self-esteem, and perceptions of their immediate supervisor, in *Communication yearbook I,* edited by BD. Ruben. New Brunswick. N.J.: Transaction: 363-375.

Falcione, RL, Sussman, L & Herden, R. 1987. Communication climate in organisations, in *Handbook of organisational communication: an interdisciplinary perspective*, edited by F. Jablin. Newbury Park, Calif: Sage: 195–227.

Faragher, E, Cass, M & Cooper, C. 2005. The relationship between job satisfaction and health: a meta-analysis. *Occupational and Environmental Medicine* 62(2):105-112.

Farrell, AM. 2009. Insufficient discriminant validity: a comment on Bove, Pervan, Beatty and Shiu. *Journal of Business Research* 63:324-327.

Farrell, AM & Rudd, J. 2009. Factor analysis and discriminant validity: a brief review of some practical issues. [O]. Available: http://www.duplication.net.au/ANZMAC09/papers/ANZMAC2009-389.pdf Accessed on 2012/01/04.

Faules, D. 1982. The use of multi-methods in the organisational setting. *Western Journal of Speech Communication* 46(1):50-161.

Felts, A. 1992. Organisational communication-a critical perspective. [O]. Available: http://www.accessmylibrary.com/article-1G1-11843654/organisational-communication-critical-perspective.html Accessed on 2012/03/02.

Field, A. 2005. Research methods II: factor analysis on SPSS. [O]. Available: www.statisticshell.com/docs/factor.pdf Accessed on 2011/04/23.

Fields, D. 2002. *Taking measure of work: a guide to validated scales for organisational research and diagnosis*. Thousand Oaks, CA: Sage.

Finch, F, Panter, T & Caskie, L. 1999. Two approaches for identifying shared personality dimensions across methods. *Journal of Personality* 67:407-438.

Finstad, K. 2010. Response interpolation and scale sensitivity: evidence against 5-point scales. *Journal of Usability Studies* 5(3):104-110.

Fisher, CD. 2000. Mood and emotions while working: missing pieces of job satisfaction? *Journal of Organisation Behavior* 21:185-202.

Fiske, D. 1987. Construct invalidity comes from method effects. *Educational and Psychological Measurement* 47(2):285-307.

Fornell, C. 1983. Issues in the application of covariance structure analysis: a comment. *Journal of Consumer Research* 9:443-448.

Frankfort-Nachmias, C & Nachmias, D. 1992. *Research methods in the social sciences .* Fourth edition. New York: St. Martin's Press.

Freeman, R. 1978. Job satisfaction as an economic variable. *American Economic Review* 68:135-141.

Freeze, R & Raschke, R. 2012. An assessment of formative and reflective constructs in IS research. [O]. Available: http://is2.lse.ac.uk/asp/aspecis/20070055.pdf
Accessed on 2012/03/04.

Freire, P. 1986. *Pedagogy of the oppressed*. New York: Continuum.

Fukuyama, F. 1995. *Trust: the social virtues and the creation of prosperity*. New York: Free Press.

Galesic, M. 2004. Dropouts on the Web: influence of changes in respondents' interest and perceived burden during the web survey. [S.I.:S.n.].

Galloway, K. 1997. Random sampling. [O]. Available: http://www.tardis.ed.ac.uk/~kate/qmcweb/s3.htm
Accessed on 2011/09/04.

Gambetta, D. 1988. Can we trust trust? in *Trust: making and breaking cooperative relations*, edited by D. Gambetta. New York: Basil Blackwell: 213-237.

GAO. 1992. *Quantitative analysis: an introduction*. Washington: United States General Accounting Office.

Garson, D. 2004. Structural equation modelling. [O]. Available: http://faculty.chass.ncsu.edu/garson/PA765/structur.htm
Accessed on 2012/02/05.

Gebru, A. 2006. Job satisfaction among journalists of the Ethiopian federal state media. Unpublished MA thesis. Addis Ababa: Addis Ababa University.

George, D & Mallery, P. 2005. *SPSS for Windows step by step: a simple guide and reference*. Boston: Allyn and Bacon.

Geraldi, JG. 2007. The schools of organisation theory. [O]. Available: http://www.unisiegen.de/fb11/ist1/forschung/the_schools_of_organisation_theory.pdf
Accessed on 2012/05/04.

Gerbing, DW & Anderson, JC. 1984. On the meaning of within-factor correlated measurement errors. *Journal of Consumer Research* 11:572-580.

Gerbing, DW & Hamilton, JG. 1996. Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modelling* 3:62-72.

Gergen, J. 1985. The social constructionist movement in modern psychology. *American Psychologist* 40:266-275.

Ghasemi, A. 2009. Using structural equation modelling in causal relationship design for balanced-scorecards strategic map. *World Academy of Science, Engineering and Technology* 49(3):1032-1038.

Gibson, JW & Hodgetts, RM. 1991. *Organisational communication – a managerial perspective.* Second edition. New York: HarperCollins.

Gilsdorf, J. 1998. Organisational rules on communicating**:** how employees are -- and are not -- learning the ropes. *Journal of Business Communication* 35(2):173-201.

Gliem, A & Gliem, R. 2003. Calculating, interpreting, and reporting Cronbach's alpha reliability coefficients for Likert-type scales. [S.I.:S.n.].

Glorfield, W. 1995. An improvement on Horn's parallel analysis methodology for selecting the correct number of factors to retain. *Educational Psychological Measurement* 55:377-393.

Goldhaber, GM. 1976. The ICA communication audit: rationale and development. [S.I.:S.n.].

Goldhaber, GM. 1993. *Organizational communication*. New York: McGraw-Hill Higher Education.

Goldhaber, GM & Krivonos, D. 1978. The ICA communication audit: process, status, critique. *Journal of Business Communication* 15(1):41-55.

Gorsuch, L. 1983. *Factor analysis*. Hillsdale, NJ: Lawrence Erlbaum.

Gray, J & Laidlaw, H. 2002. Part-time employment and communication satisfaction in an Australian retail organisation. *Employee Relations* 24(2):211-228.

Gray, J & Laidlaw, H. 2004. Improving measurement of communication satisfaction. *Management Communication Quarterly* 17(3):425-448.

Greenbaum, H, Clampitt, P & Willihnganz, S.1998. Organisational communication: an examination of four instruments. *Management Communication Quarterly* 2(2):245-282.

Greenbaum, H, Hellweg, S & Falcione, R. 1988. Organisational communication evaluation: an overview, 1950-1981, in *Handbook of organisational communication*, edited by G. Goldhaber and G. Barnett. Norwood: Alex: 275-317.

Greenbaum, H, DeWine, S & Downs, H. 1987. Management and organisational communication measurement: a call for review and evaluation. *Management Communication Quarterly* 1(1):129-144.

Greenberg, J. 1993. The social side of fairness: interpersonal and informational classes of organisational justice, in *Justice in the workplace: approaching fairness in human resource management*, edited by R. Cropanzano. Hillsdale: Erlbaum: 79-103.

Greer, V, Chuchinprakarn, N & Seshadri, S. 2000. Likelihood of participating in mail survey research – business respondents' perspectives. *Industrial Marketing Management* 29:97–109.

Gregson, T. 1990. Communication satisfaction: a path analytic study of accountants affiliated with CPA Firms. *Behavioural Research in Accounting* 2:32-49.

Gregson, T. 1991. The separate constructs of communication satisfaction and job satisfaction. *Educational and Psychological Measurement* 51(1):39-48.

Griffin, A. 2003. *A first look at communication theory*. Third edition. New York: McGraw-Hill.

Groves, R, Fowler, F, Couper, M, Lepkowski, J, Singer, E & Tourangeau, R. 2009. *Survey methodology*. New Jersey: Wiley & Sons.

Grovier, T. 1994. An epistemology of trust. *International Journal of Moral Social Studies* 8:55-174.ical Review

Groysberg, B & Slind, M. 2012. *Talk, inc.: how trusted leaders use conversation to power their organisations*. Boston: Harvard Business Press Books.

Guadagnoli, E & Velicer, WF. 1988. Relation of sample size to the stability of component patterns. *Psychological Bulletin* 103:265-275.

Gudykunst, W & Lee, C. 2003. Crosscultural communication theories, in *Cross-cultural and intercultural communication,* edited by W. Gudykunst and C. Lee: London: Sage: 7-35.

Guerrero, L, Anderson, P & Afifi, W. 2007. *Close encounters: communication in relationships.* Second edition*.* Los Angeles: Sage.

Guerrero, LK, Devito, JA & Hecht, ML. 1999. *The nonverbal communication reader: classic and contemporary readings.* Second edition. Long Grove, IL: Waveland Press.

Gülnar, B. 2012. The relationship between communication satisfaction and job satisfaction: a survey among Selcuk university research assistants. [O]. Available: http://cim.anadolu.edu.tr/pdf/2007/Gulnar.pdf
Accessed on 2012/03/05.

Habing, B. 2012. Exploratory factor analysis. [O]. Available: http://www.stat.sc.edu/~habing/courses/530EFA.pdf
Accessed on 2012/03/12.

Hair, JF, Anderson, RE, Tatham, RL & Black, WC. 1998. *Multivariate data analysis***.** Fifth edition. New Jersey: Prentice-Hall.

Hair, JF, Anderson, R, Tatham, RL & Black, WC. 2007. *Multivariate data analysis.* Tenth edition. New York: Macmillan.

Hall, R. 1991. *Organisations*. London: Prentice-Hall.

Hamilton, C & Parker, C. 1987. *Communicating for results.* New York: Wadsworth.

Hamilton, S. 1987. *A communication audit handbook*: *helping organisations communicate*. London: Pitman.

Hardin, R. 2006. The street-level epistemology of trust, in *Organisational trust*, edited by R. Kramer. Oxford: Oxford University Press: 21-47.

Hargie, O & Tourish, D. 1993. Assessing the effectiveness of communication in organisations: the communication audit approach. *Health Services Management Research* 6(4):276-285.

Hargie, O & Tourish, D. 2004. How are we doing? Measuring and monitoring organisational communication, in *Key issues in organisational communication,* edited by D. Tourish and O. Hargie: London: Routledge: 234-251.

Hargie, O, Tourish, D & Wilson, N. 2002. Communication audits and the effect of increased information: a follow up study. *Journal of Business Communication* 39(4):414-436.

Harter, J, Schmidt, F, Killham, E & Asplund, J. 2012. Q12® Meta-Analysis. [O]. Available: http://strengths.gallup.com/private/Resources/Q12Meta-Analysis_Flyer_GEN_08%2008_BP.pdf
Accessed on 2012/05/03.

Hatch, J. 1997. *Organisational theory*. London: Sage.

Hawking, RR & Pendleton, OJ. 1983. The regression dilemma. *Theory and Methods* 12:497-527.

Hayes, E. 1998. *Measuring customer satisfaction: survey design, use and statistical analysis methods*. Milwaukee: ASQ Quality Press.

Haynes, S, Richard, D & Kubany, E. 1995. Content validity in psychological assessment: a functional approach to concepts and methods. *Psychological Assessment* 7(3):238-256.

Hayton, C, Allen, G & Scarpello, V. 2004. Factor retention decisions in exploratory factor analysis: a tutorial on parallel analysis. *Organisational Research Methods* 7:191-205.

HCU. 1999. Conducting survey research. [O]. Available: http://www.thcu.ca
Accessed on 11/12/2008.

Heathwood, C. 2005. Desire-satisfaction theories of welfare. Unpublished PHD dissertation. Amherst: University of Massachusetts.

Heberlein, TA & Baumgartner, R. 1978. Factors affecting response rates to mailed surveys: a quantitative analysis of the published literature. *American Sociological Review* 43*:*447-462.

Hecht, M. 1978a. The conceptualisation and measurement of interpersonal communication satisfaction. *Human Communication Research* 4(3):253–264.

Hecht, M. 1978b. Toward a conceptualisation of communication satisfaction. *Quarterly Journal of Speech* 64:47-62.

Hecht, M. 1978c. Measures of communication satisfaction. *Human Communication Research* 4:350-368.

Heler, F, Pusic, E, Strauss, G & Wilpert, B. 1998. *Organisational participation: myth and reality*. Oxford: Oxford University Press.

Henczel, S. 2000. The information audit as a first step towards effective knowledge management. *IFLA Publications* 108(1):91-106.

Henson, RK & Roberts, JK. 2006. Exploratory factor analysis reporting practices in published psychological research: common errors and some comment on improved practice. *Educational and Psychological Measurement* 66(3):393-416.

Heylighen, F. 2012. The necessity of theoretical constructs: a rebuttal of the behaviourist approach to memetics. [O]. Available: http://cfpm.org/jom-emit/1999/vol3/heylighen_f.html
Accessed on 2012/07/05.

Hill, S & Northhouse, P. 1978. A research design for studying communication climate within an organisation. *Journal of Business Communication* 15:37-44.

Hirschheim, RA. 1985. Information systems epistemology: an historical perspective, in *Research methods in information systems*, edited by E. Mumford, R. Hirschheim, G. Fitzgerald and T. Wood-Harper. Amsterdam: North-Holland: 13–36.

Hobbes, T. 1994. Leviatan. *With selected variants from the Latin edition of 1668*. Indianapolis: Hackett.

Hoe, S. 2008. Issues and procedures in adopting structural equation modelling technique. *Journal of Applied Quantitative Methods* 3(1):76-83.

Hofstede, G. 1991. *Cultures and organisations.* London: McGraw-Hill.

Hofstede, G. 2002. *Culture's consequences: comparing values, behaviors, institutions, and organisations across nations.* Second edition. Thousand Oaks: Sage.

Holbert, R & Stephenson, M. 2002. Structural equation modelling in the communication sciences, 1995–2000. *Human Communication Research* 28(4):531-551.

Holbrook, A, Krosnick, J & Pfent, A. 2007. The causes and consequences of response rates in surveys by the news media and government contractor survey research firms, in *Advances in telephone survey methodology,* edited by JM. Lepkowski, C. Tucker, JM. Brick, ED. de Leeuw, L. Japec, PJ. Lavrakas, MW. Link and RL. Sangster. New York: Wiley: 499–528.

Hooper, D, Coughlan, J & Mullen, M. 2008. Structural equation modelling: guidelines for determining fit. *Electronic Journal of Business Research Methods* 6(1):53-60.

Horn, R & Martin, W. 2012. Exploratory factor analysis. [O]. Available: http://oak.ucc.nau.edu/rh232/courses/EPS624/Handouts/Exploratory%20Factor%20Analysis.pdf
Accessed on 2012/05/03.

Hox, J & Bechger, T. 2012. An introduction to structural equation modeling. *Family Science Review* 11:354-373.

Hoyle, RH (ed). 1995. *Structural equation modelling: concepts, issues, and applications*. Thousand Oaks, CA: Sage.

Hoyle, RH. 2012. *Handbook of structural equation modelling*. New York: Guilford Press.

Hulman, G, Goodnight, A & Mougeotte, J. 2012. An examination of perceived relational messages that accompany interpersonal communication motivations. *The Open Communication Journal* 6:1-7.

Hurley, E, Scandura, A, Schriesheim, C, Brannick, T, Seers, A, Vandenberg, J & Williams, J. 1997. Exploratory and confirmatory factor analysis: guidelines, issues, and alternatives. *Journal of Organisational Behavior* 18(6):667-683.

Hutcheson, G & Sofroniou, N. 1999. *The multivariate social scientist*. Thousand Oaks, CA: Sage.

Iacobucci, D. 2010. Structural equations modelling: fit indices, sample size, and advanced topics. *Journal of Consumer Psychology* 20:90–98.

Ioannidis, J. 2007. Limitations are not properly acknowledged in the scientific literature. *Journal of Clinical Epidemiology* 60:324-329.

Iyer, S & Israel, D. 2012. Structural equation modelling for testing the impact of organisation communication satisfaction on employee engagement. *South Asian Journal of Managemen*t 19(1):151-181.

Jablin, FM. 1979. Superior-subordinate communication: the state of the art. *Psychological Bulletin* 86(6):1201-1222.

Jacobs, R. 2012. Theories of practice: the human resource frame. [O]. Available: www83.homepage.villanova.edu/.../MPA%208002/.../8002%20MPA/structural.ppt
Accessed on 2012/03/04.

Jevons, S. 1874. *The principles of science: a treatise on logic and scientific method*. London: Macmillan.

Johnson, D. 1994. *Research methods in educational management.* London: Longman.

Johnson, JD. 1993. *Organisational communication structure*. Norwood, NJ: Ablex.

Jones, D. 2002. The interpretive auditor: reframing the communication audit. *Management Communication Quarterly* 15:466-471.
Jones, M & Blunt, P. 1993. Organisational development and change in Africa. *International Journal of Public Administration* 16(11):1735-1765.

Jöreskog, KG. 1993. Testing structural equation models, in *Testing structural equation models*, edited by KA. Bollen and J. Scott Long. Newbury Park, CA: Sage: 294-316.

Jöreskog, KG & Sörbom, D. 1989. *Lisrel 7: a guide to the program and applications.* Second edition. Chicago, Ill.: SPSS.

Judge, TA & Church, AH. 2000. Job satisfaction: research and practice, in *Industrial theory and practice,* edited by CL. Cooper and EA. Locke. Oxford: Blackwell: 166-198.

Kaiser, HF. 1974. An index of factorial simplicity. *Psychometrica* 39:31-36.

Kajs, T. 2009. Examining tolerance for ambiguity in the domain of educational leadership. *Academy of Educational Leadership Journal* 13(2):1-17.

Kalleberg, AL. 1977. Work values and job rewards—theory of job satisfaction. *American Sociological Review* 42:124-143.

Kassim, M. 2001. Determinants of customer satisfaction and retention in the cellular phone market of Malaysia. Unpublished PhD dissertation. Lisbon: Southern Cross University.

Katz, D & Kahn, L. 1978. *The social psychology of organisations*. New York: John Wiley & Sons.

Kellermann, K & Reynolds, R. 1990. When ignorance is bliss. The role of motivation to reduce uncertainty in uncertainty reduction theory. *Human Communication Research* 17:5-75.

Kenny, D. 2012. [david.kenny@uconn.edu]. A question on interfactor correlation. Email to A Gebru on 17/8/2012 (43640540@mylife.unisa.ac.za).

Kenny, D, Kashy, D & Cook, W. 2006. *Dyadic data analysis*. New York: Guilford Press.

Keyton, J. 2001. *Communication research: asking questions, finding answers.* New York: McGraw-Hill Higher Education.

Kieffer, K. 1999. An introductory primer on the appropriate use of exploratory and confirmatory factor analysis. *Research in the Schools* 2:75-92.

Kiesler, DJ. 1996. *Contemporary interpersonal theory and research: personality, psychopathology and psychotherapy*. New York: Wiley.

Kim, K. 2005. The relationship among fit indices, power and sample size in structural equation modelling. *Structural Equation Modelling* 12(3):368-390.

Kish, L . 1995. Survey sampling. [O]. Available: http:///Sampling_frame Accessed on 2011/02/27.

Kitayama, S, Markus, HR & Kurokawa, R. 2000. Culture, emotion, and well-being: good feelings in Japan and the United States. *Cognition and Emotion*, 14:93-124.

Kitayama, S, Mesquita, B & Karasawa, M. 2000. Cultural affordances and emotional experience: socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology* 91(5):890-903.

Klauss, R & Bass, BM. 1982. *Interpersonal communication in organisations.* New York: Academic Press.

Kline, RB. 1998. *Principles and practice of structural equation modelling*. New York, NY: Guilford Press.

Kline, RB. 2005. *Principles and practice of structural equation modelling*. Second edition. New York: Guilford Press.

Knipp, E. 1985. The impact of communication climate perceptions on job satisfaction: a survey of Orange County commercial banks. Unpublished MA thesis. Los Angeles: California State University.

Kock, N. 2004. The psychobiological model: towards a new theory of computer-mediated communication based on Darwinian evolution. *Organisation Science* 15(3):327-348.

Kock, N. 2005. Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behavior toward e-

communication tools. *IEEE Transactions on Professional Communication* 48(2):117–130.

Koehler, J & Huber, G. 1974. *Effects of upward communication on managerial decision making.* New Orleans: International Communication Association.

Koehler, JW, Anatol, KW & Applebaum, RL. 1981. *Organizational communication: behavioral perspectives*. Second edition. New York: Holt, Rinehart & Winston.

Koike, H, Gudykunst, W, Stewart, L, Ting-Toomey, S & Nishida, T. 1988. Communication openness, satisfaction and length of employment in Japanese organisations. *Communication Research Reports* 5(2):97-102.

Kolenikov, S. 2012. Specification testing with Heywood cases: can standard errors be trusted? [O]. Available: http://web.missouri.edu/~kolenikovs/talks/APS-SF-22052009.pdf
Accessed on 2012/02/05.

Kopec, A. 1982. The communication audit. *Public Relations Journal* 42(911):51-52.

Kraemer, KL. 1993. Introduction to survey research methodology. [S.I.: S.n.].

Kramer, MW. 1995. A longitudinal study of superior-subordinate communication during job transfers. *Human Communication Research* 22:39-64.

Kramer, RM. 1999. Trust and distrust in organisations: emerging perspectives, enduring questions. *Annual Review of Psychology* 50:569-598.

Kramer, RM. 2004. *Managing uncertainty in organisational communication*. Mahwah, NJ: Lawrence Erlbaum Associates.

Kramer, RM. 2006. Organisational trust: progress and promise in theory and research, in *Organisational trust*, edited by RM. Kramer. Oxford: Oxford University Press: 1-17.

Krivonos, P. 1978. The relationship of intrinsic-extrinsic motivation and communication climate in organisations. *Journal of Business Communication* 15(4):53-65.

Krivonos, P. 1982. Distortion of subordinate to superior communication in organisational settings. *Central States Speech Journal* 33(1):345-352.

Krone, K. 2005. Trends in organisational communication research: sustaining the discipline, sustaining ourselves. *Communication Studies* 56(1):95-105.

Landreneau, K & Creek, W. 2011. Sampling strategies. [O]. Available: http: www.natco1.org/research/files/SamplingStrategies.pdf
Accessed on 2011/01/05.

Larkin, T & Larkin, S. 1994. C*ommunicating change: winning employee support for new business goals.* New York: McGraw-Hill.

Larson, W & King, J. 1996. The systemic distortion of information: an ongoing challenge to management. *Organisational Dynamics* 24(3):49-62.

Law, K, Wong, C & Mobley, W. 1998. Toward a taxonomy of multidimensional constructs. *Academy of Management Review* 23(4):741-755.

Ledesma, D & Valero-Mora, P. 2007. Determining the number of factors to retain in EFA: an easy-to-use computer program for carrying out parallel analysis. *Practical Assessment Research & Evaluation* 12(2):1-11.

Ledingham, JA. 2003. Explicating relationship management as a general theory of public relations. *Journal of Public Relations Research* 15(2):181-198.

Lee, J. 1997. Leader-member exchanges, the Pelze effect and co-operative communication between group members. *Management Communication Quarterly* 11:266-287.

Leedy, P & Ormrod, J. 2005*. Practical research*. New Jersey: Prentice Hall.

Leong, F & Austin, J. 2006. *The psychology research handbook: a guide for graduate students and research assistants*. Thousand Oaks, Calif.: Sage.

Lester, RE. 1987. Organisational culture, uncertainty reduction, and the socialization of new organisational members, in *Culture and communication: methodology, behavior, artifacts, and institutions,* edited by S. Thomas. Norwood, NJ: Ablex: 105-113.

Level, A. 1959. A case study of human communication in an urban bank. Unpublished PhD dissertation. West Lafayette: Purdue University.

Level, D & Galle, W. 1988. *Managerial communications*. Illinois: Business Publications.

Levy-Garboua, L & Montmarquette, C. 2007. A theory of satisfaction and utility with empirical and experiential evidences. [S.I.:S.n.].

Lewicki, R & Bunker, B. 1996. Developing and maintaining trust in work relationships, in *Trust in organisations*, edited by R. Kramer and T. Tyler. London: Sage: 114-139.

Lewis, B, Templeton, F & Byrd, TA. 2005. A methodology for construct development in MIS research. *European Journal of Information Systems* 14(4):388-400.

Lewis, D & Weigert, A. 1985. Trust as a social reality. *Social Forces* 63(4):967-985.

Limerick, D & Cunnington, B. 1993. *Managing the new organisations.* Chatswood: Business and Professional Publishing.

Locke, E. 1976. The nature and causes of job satisfaction, in *Handbook of industrial and organisational psychology,* edited by MD. Dunnette. Chicago: Rand McNally: 1297–1349.

Lohr, S. 2010. *Sampling: design and analysis*. New York: Cole.

London, M. 1997. *Job feedback.* New Jersey: Lawrence Erlbaum Associates.

Lorette, K. 2012. The importance of the grapevine in internal business communications. [O]. Available: http://smallbusiness.chron.com/importance-grapevine-internal-business-communications-429.html
Accessed on 2012/03/02.

Lukas, M. 2011. Desire satisfactionism and the problem of irrelevant desires. *Journal of Ethics & Social Philosophy* 4(2):1-25.

Lunenburg. F. 2010. Formal communication channels: upward, downward, horizontal, and external. *Focus on Colleges, Universities, and Schools* 4(1):1-7.

Luthans, F. 1981. *Organisational behaviour.* 54th edition. New York: McGraw.

Luthans, F & Martinko, M. 1979. *The practice of supervision and management.* New York: McGraw-Hill.

MacCallum, R, Widaman, F, Zhang, S & Hong, S. 1999. Sample size in factor analysis. *Psychological Methods* 4:84-99.

MacLean, S & Gray, K. 1998. Structural equation modelling in market research. [O]. Available: http://www.smallwaters.com/whitepapers/marketing
Accessed on 2011/05/19.

Madlock, P. 2012. The influence of power distance and communication on Mexican workers. *Journal of Business Communication* 49(2):169–184.

Magalhaes, A, Andreoni, B & Engenharia, D. 2011. The rhetoric of oppression in the workplace. [O]. Available: http://businesscommunication.org/wp-content/uploads/2011/10/2011-ABC-08-ANDREONI.pdf
Accessed on 2011/03/25.

Malhotra, K. 1993. *Marketing research: an applied orientation*. Englewood Cliffs: Prentice-Hall.

Malhotra, K. 1999. *Marketing research: an applied orientation*. Third edition. London: Prentice Hall.

Marret, C, Hage, J & Aiken, M. 1975. Communication and satisfaction in organisations. *Human Relations* 28:661-626.

Marsh, HW. 1989. Confirmatory factor analysis of multitrait-multimethod data: many problems and few solutions. *Applied Psychological Measurement* 13:335-361.

Marshall, A. 1920*. Principles of economics. an introductory volume.* Eighth edition. London: Macmillan.

Martin, M & Sell, J. 1980. The marginal utility of information: its effects upon decision-making. *The Sociological Quarterly* 21(2):233-242.

Maslow, H. 1954. *Motivation and personality.* New York: Harper & Row.

Matsunaga, M. 2010. How to factor analyse your data right: do's, don'ts, and how-to's. *International Journal of Psychological Research* 3(1):97-110.

Mayer, RC, Davis, JH & Schoorman, FD. 1995. An integrative model of organizational trust. *Academy of Management Review* 20(3):709-734.

Mayer, RC, Davis, JH & Schoorman, FD. 2006. An integrative model of organisational trust, in *Organisational trust*, edited by R. Kramer. Oxford: Oxford University: 82-110.

Mazzei, A. 2010. Promoting active communication behaviours through internal communication. *Corporate Communications: An International Journal* 15(3):221-234.

McClelland, VA. 1988. Upward communication: is anyone listening? *Personnel Journal* 7:124-129.

McCormick, N. 2012. Management blind spots - the dangers of filtering information. [O]. Available: http://ezinearticles.com/?Management-Blind-Spots---The-Dangers-of-Filtering-Information&id=7823
Accessed on 2012/04/03.

McDaniel, C & Gates, R. 1995. *Marketing research essentials*. St Paul, MN: West Publishing.

McDonald, P & Ho, R. 2002. Principles and practices in reporting statistical equation analysis. *Psychological Methods* 7(1):64-82.

McGinn, T. 2011*. Instructions for probability proportional to size sampling technique.* [O]. Available: www.rhrc.org/resources/.../55b%20pps%20sampling%20technique.pd
Accessed on 2011/06/13.

McKnight, DH, Cummings, LL & Chervany, NL. 1998. Initial trust formation in new organisational relationships. *Academy of Management Review* 23(3):473-490.

McQuitty, S. 2004. Statistical power and structural equation models in business research. *Journal of Business Research* 57(2):175-183.

Meier, S. 2008. *Measuring change in counseling and psychotherapy.* New York: Guilford Press.

Meintjes, C & Steyn, B. 2006. A critical evaluation of the Downs Hazen Instrument by measuring employee communication satisfaction at a private higher education institution in South Africa. *Communicatio* 32(1):152–188.

Mekonnen, S & Mamman, A. 2004. HRM in Ethiopia, in *Managing human resources in Africa*, edited by K. Kamoche, Y. Debrah, F. Horwitz and G. Nkombo Mukkua. London: Routledge: 103-120.

Mengesha, G & Commons, R. 2006. Civil service reform in Ethiopia. [O]. Available: http://www2.hull.ac.uk/hubs/pdf/memorandum59.pdf
Accessed on 2012/11/05.

Mersham, G & Skinner, C. 2001. *New insight into business and organisational communication.* Sundown: Heinemann.

Metagora, P. 2011. Cluster sampling. [O]. Available: http://www.metagora.org/training/encyclopedia/cluster.html
Accessed 2011/09/04.

Michell, J. 1999. *Measurement in psychology*. Cambridge: Cambridge University Press.

Miller, D. 1983. *Handbook of research design and social measurement*. London: Longman.

Miller, GA. 1956. The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review* 63:81-97.

Miller, K. 2001. Quantitative research methods, in *New handbook of organisational communication,* edited by J. Fredrik and L. Putnam. Thousand Oaks: Sage: 137-160.

Miller, K. 2003. *Organisational communication*. Singapore: Wadsworth.

Miller, K. 2008. (kmiller@tamu.edu)2008/11/7. Organisational communication satisfaction (a question). Email to A Gebru on 7/11/2008 (amanuel_gebru@yahoo.com).

Miller, RM & Brewer, JD (eds.). 2003. *The A-Z of social research*. New York: Sage.

Mills, C. 2010. In-house perceptions of an organisation's grapevine activity. [O]. Available: http://www.anzca.net/component/docman/cat_view/27-anzca-02/28-refereed-proceedings.html?start=15
Accessed on 2010/03/04.

Mishra, A. 1996. Organizational response to crisis: the centrality of trust, in *Trust in organisations*, edited by R. Kramer and T. Tyler. New York: Sage: 261-287.

Mishra, J. 1990. Excerpts from managing the grapevine. [O]. Available: http://www.analytictech.com/mb119/grapevine-article.htm
Accessed on 2012/03/04.

Mohamad, S. 2008. Effects of communication on turnover intention: a case of hotel employees in Malaysia. [O]. Available: http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=2193&context=etd&sei-redir=1&referer=http://www.google.com/search%3Fq%3Dcommunication%2Bsatisfaction%2Band%2Bintent%2Bto%
Accessed on 2012/03/04.

Monette, D, Sullivan, T & DeJong, C. 2011. *Applied social research: a tool for the human services*. New York: Cengage Learning.

Monge, P & Contractor, N. 1998. Emergence of communication networks. [O]. Available: http://www.tec.spcomm.uiuc.edu/nosh/HOCNets.html Accessed on 2011/04/09.

Moore, GE. 1993. *Principia ethica*. Cambridge: Cambridge University Press.

Moorman, RH. 1993. The influence of cognitive and affective based job satisfaction measures on the relationship between satisfaction and organisational citizenship behavior. *Human Relations* 6:759-776.

Moors, A. 1986. The meaning of kurtosis: a critical review. *American Statistician* 42(5):111-119.

Mount, D & Back, K. 1999. A factor analytic study of communication satisfaction in the lodging industry. *Journal of Hospitality and Tourism Research* 23(4):401-418.

Mueller, B & Lee, J. 2002. Leader-member exchange and organisational communication satisfaction in multiple contexts. *The Journal of Business Communication* 39(2):220-244.

Myers, G & Myers, M. 1976. *The dynamics of human communication: a laboratory approach*. New York: McGraw-Hill.

Nakra, R. 2006. Relationship between communication satisfaction and organisational identification: an empirical study. *The Journal of Business Perspective* 10(2):40-51.

Ndi-Zambo, B. 2012. Towards a culture of cooperation and quality in African public administration. [O]. Available: http://unpan1.un.org/intradoc/groups/public/documents/un/unpan000387.pdf Accessed on 2012/04/05.

Neher, W. 1997. *Organisational communication: challenges of change, diversity, and continuity.* New York: Allyn & Bacon.

Neuliep, J & Grohskopf, E. 2000. Uncertainty reduction and communication satisfaction during initial interaction: an initial test and replication of a new axiom. *Communication Reports* 13(2):67-77.

Newsome, P & Wright, G. 1999. Patient management; a review of patient satisfaction. *British Dental Journal* 186:161-165.

Nicholas, RG. 1962. Listening is good business. *Management of Personnel Quarterly* 5(2):1-15.

Noar, S. 2009. The role of structural equation modelling in scale development. *Structural Equation Modelling: A Multidisciplinary Journal* 10(4):622-647.

Nobile, J. 2008. Supportive communication in Catholic primary schools. [O]. Available: http://www.aare.edu.au/08pap/den08791.pdf
Accessed on 2011/04/16.

Nuss, MD. 2005. A longitudinal case study of organisational commitment and communication satisfaction in a police department. Unpublished PhD dissertation. Kansas: University of Kansas.

Oliver, R. 1971. *Communication and culture in ancient India and China*. Syracuse, NY: Syracuse University Press.

Onwumechili, C. 1996. Organisational culture in Nigeria: an exploratory study. *Communication Research Reports* 13(2):239-249.

Orna, E. 1999. *Practical information policies*. Aldershot: Gower.

Overwalle, F, Meylighen, F & Heath, M. 2011. Trust in communication between individuals: a conceptual approach. [O]. Available: http: www.tandfonline.com/doi/abs/10.1080/10196780050177072
Accessed on 2010/02/05.

Oyserman, D, Coon, M & Kemmelmeier, M. 2002. Rethinking individualism and collectivism? Evaluation of theoretical assumptions and metaanalysis. *Psychological Bulletin* 12(1):3-72.

Pacanowsky, E & O'Donnell-Trujillo, N. 1983. Organisational communication as cultural performance. *Communication Monographs* 50:147-186.

Pace, W & Faules, DF. 1994. *Organisational communication.* Third edition. London: Prentice-Hall.

Papa, J, Daniels, T & Spiker, B. 2008. *Organisational communication: perspective and trends*. London: Sage.

Pardee, W. 2008. *Hybrid vigor. Microsoft Encarta*. New York: Microsoft Corporation.

Pascale, RT & Athos, AG. 1981. *The art of Japanese management.* New York: Simon and Schuster.

Patil, H, Singh, H, Mishra, S & Donovan, T. 2008. Efficient theory development and factor retention criteria: a case for abandoning the 'eigenvalue greater than one' criterion. *Journal of Business Research* 61(2):162-170.

Paul, R. 2006. Multicollinearity: causes, effects and remedies. [O]. Available: http://www.iasri.res.in/seminar/AS299/ebooks\20052006\Msc\trim2\3.%20Multicollinearity%20Causes,Effects%20and%20Remedies-Ranjit.pdf Accessed on 2011/10/11.

Pearce, G & Segal, D. 2004. Effects of organisational communication satisfaction on job performance and firm growth in small businesses. [O]. Available: http://www.sbaer.uca.edu/research/sbida/1998/pdf/27.pdf Accessed on 2012/03/05.

Peat, J, Mellis, C, Williams, K & Xuan, W. 2002. *Health science research: a handbook of quantitative methods*. London: Sage.

Pelavin, P. 2006. The management of nonnormal data in structural equation modelling. Unpublished PhD dissertation. Detroit: Wayne State University.

Perlow, L & Williams, S. 2003. Is silence killing your company? *Harvard Business Review* 81:52-58.

Peter, J. 1981. Construct validity: a review of basic issues and marketing practices. *Journal of Marketing Research* 18(3):133-145.

Peterson, S. 2001. Financial reform in a devolved African country: lessons from Ethiopia. *Public Administration and Development* 21:131-148.

Pettit, J, Goris, J & Vaught, B. 1997. An examination of organisational communication as a moderator of the relationship between job performance and job satisfaction. *Journal of Business Communication* 34(1):81-98.

Pfeffer, A. 1991. Co-dependence and learned dysfunctional behavior, in *The 1991 annual: developing human resources,* edited by JW. Pfeffer. San Diego: University Associates: 215-224.

Pincus, D. 1986. Communications satisfaction, job satisfaction, and job performance. *Human Communication Research* 12(3):395-419.

Pincus, D & Rayfield, R. 1989. Organisational communication and job satisfaction: a meta research perspective. *Progress in Communication* 9:183-208.

Pincus, J, Knipp, J & Rayfield, R. 1990. Internal communication and job satisfaction revisited: the impact of organisational trust and influence on commercial bank supervisors. *Journal of Public Relations Research* 2(1):173-191.

Polonsky, MJ. 1998. Incorporating ethics into business students' research projects: a process approach. *Journal of Business Ethics* 17(11):1227–1241.

Poortinga, H. 1989. Equivalence of cross-cultural data: an overview of basic issues. *International Journal of Psychology* 24(2):737-756.

Potvin, TC. 1991. Employee organisational commitment: an examination of its relationship to communication satisfaction and an evaluation of questionnaires designed to measure the construct. Unpublished PhD dissertation. Kansas: University of Kansas.

Provaznik, B. 2012. Lost in translation: organisational behavior constructs across cultures – hope as an example. [O]. Available: http://ecedweb.unomaha.edu/neba/journal/v1n1p105.pdf Accessed on 2012/04/05.

Putnam, L. 1982. Paradigms for organisational communication research: an overview and synthesis. *The Western Journal of Speech Communication* 46(1):192-206.

Putti, JM, Aryee, S & Phua, J. 1990. Communication relationship satisfaction and organisational commitment. *Group & Organisational Studies* 15(1):44-52.

Quirke, B. 1995. Internal communication, in *Strategic public relations,* edited by N. Hart. London: Macmillan: 76-92.

Rachman, S. 1974. *The meanings of fear*. Harmondsworth: Penguin.

Rattray, J & Jones, MC. 2007. Essential elements of questionnaire design and development. *Journal of Clinical Nursing* 16:234-243.

Rawlins, K & Holl, M. 1988. Adolescents' interactions with parents and friends: dialectics of temporal perspective and evaluation. *Journal of Social and Personal Relationships* 5:27-46.

Rea, L & Parker, R. 1997. *Designing and conducting survey research*. Second edition. San Francisco: Jossey-Bass.

Read, W. 1962. Upward communication in industrial hierarchies. *Human Relations* 15:3-15.

Readership Institute. 2012. Newspaper content what makes readers more satisfied. [O]. Available: http://www.readership.org/content/editorial/data/what_content_satisfies_readers.pdf Accessed on 2012/05/06.

Redding, WC. 1972. *Communication within the organisation: an interpretive review of theory and research*. New York: Industrial Communication Council.

Redding, WC. 1979. Organisational communication theory and ideology: an overview, in *Communication yearbook 3,* edited by D. Nimmo. New Brunswick, NJ: Transaction Books: 309-341.

Redding, WC. 1996. Communication ethics: a case of culpable neglect, in *Ethics of technological transfer*, edited by J. Jaksa and M. Pritchard. Cresskill, NJ: Hampton Press: 7-34.

Reichers, AE & Schneider, B. 1990. Climate and culture: an evolution of constructs, in *Organisational climate and culture*, edited by B. Schneider. San Francisco: Jossey-Bass: 5–39.

Rhoades, L & Eisenberger, R. 2002. Perceived organisational support: a review of the literature. *Journal of Applied Psychology* 87:698–714.

Richmond, P & McCroskey, C. 2009. *Organisational communication for survival: making work, work*. Boston MA: Pearson/Allyn & Bacon.

Rietveld, T & Van Hout, R. 1993. *Statistical techniques for the study of language and language behaviour.* New York: Mouton de Gruyter.

Rizzo, A & Brosnan, D. 1990. Critical theory and communication dysfunction: the case of sexually ambiguous behavior. *Administration & Society* 22:66-85.

Roberson, MT & Sundstrom, E.1990. Questionnaire design, return rates, and response favorableness in an employee attitude questionnaire. *Journal of Applied Psychology* 75(3):354-357.

Roberts, K & O' Reilly, C. 1974. Failures in upward communication: three possible culprits. *Academy of Management Journal* 17(2):205-215.

Robins, SP. 1996. *Organisational behaviour – concepts, controversies and applications.* Englewood Cliffs, NJ: Prentice Hall.

Robson, C. 2002. *Real world research*. London: Blackwell.

Rogers, EM & Rogers, R. 1976*. Communications in organisations*. New York: Free Press.

Roth, L & BeVier, A. 1998. Response rates in HRM/OB survey research: norms and correlates. *Journal of Management* 24:97-117.

Rubin, R, Palmgreen, P & Sypher, E (eds). 1994. *Communication research measures*. New York: Guilford Press.

Rubin, R, Perse, E & Barbato, C. 2006. Conceptualisation and measurement of communication motives. *Human Communication Research* 14(4):602-628.

Rummel, R. 2012. Correlation matrix. [O]. Available: www.hawaii.edu/powerkills/UFA.HTM
Accessed on 2012/04/02.

Saane, N, Sluitter, J, Verbeek, H & Frings-Dresen, M. 2003. Reliability and validity of instruments measuring job satisfaction: a systematic review. *Occupational Medicine* 53(3):191-200.

Sahlestein, M. 2006. Making plans: praxis strategies for negotiating uncertainty-certainty in long distance relationships. *Western Journal of Communication* 70(2):147-165.

Salem, J & Williams, L. 1984. Uncertainty and satisfaction: the importance of types of information in hospital communication. *The Journal of Applied Communication Research* 12(2):75-89.

Samovar, L, Richard, P, McDaniel, E & Roy, C. 2012. *Communication between cultures.* London: Wadsworth.

Särndal, C, Swensson, B & Wretman, J. 2003. *Model assisted survey sampling*. Berlin: Springer Verlag.

Savalei, V & Bentler, P. 2012. Structural equation modelling. [O]. Available: www.terry.uga.edu/~rgrover/chapter_17.pdf
Accessed on 2012/03/02.

Savolainen, P. 2001. Finding a right way to communicate; evaluation of communication practices in a multicultural project. [O]. Available: https://jyx.jyu.fi/dspace/bitstream/handle/123456789/9106/psavolai.pdf?
Accessed on 2010/02/09.

Schalles, C. 2013. *Usability evaluation of modelling languages*. London: Springer.

Schmitt, T. 2011. Analysis of current methodological considerations in exploratory and confirmatory factor analyses. *Journal of Psychoeducational Assessment* 29(4):304-321.

Schreiber, J, Stage, F, King, J, Nora, A & Barlow, E. 2006. Reporting structural equation modelling and confirmatory factor analysis: a review. *The Journal of Educational Research* 99(6):322-337.

Schultz, D & Schultz, S. 2010. *Psychology and work today.* New York: Prentice Hall.

Schumacker, R & Lomax, R. 2004. *A beginner's guide to structural equation modelling.* London: Lawrence Erlbaum Associates.

Seeger, M. 2001. Ethics and communication in organisational contexts: moving from the fringe to the center. *American Communication Journal* 5(1):1-10.

Sekaran, U. 1992. *Research methods for business. A skills building approach*: New York: John Wiley.

Seta, E, Paulus, B & Baron, R. 2000. *Effective human relations: a guide to people at work*. Boston: Allyn & Bacon.

Shapiro, SP. 1987. The social control of impersonal trust. *American Journal of Sociology* 93(3):623-658.

Shockley-Zalabak, P & Ellis, K. 2000. Perceived organisational effectiveness, job satisfaction, culture, and communication: challenging the traditional view. *Communication Research Reports* 17:375-386.

Short, E & Williams, B. 1983. *The social psychology of telecommunications*. London: Wiley.

Shulruf, B, Hattie, J & Dixon, R. 2011. Intertwinement of individualist and collectivist attributes and response sets. *Journal of Social, Evolutionary and Cultural Psychology* 5(1):51-65.

Shuter, R. 2011. Robert T. Oliver: Trailblazer in intercultural communication. [O]. Available: http://epublications.marquette.edu/cgi/viewcontent.cgi?article=1052&context=comm_fac&seiredir=1&referer=http://www.google.com/search%3Fq%3Dthe%2Beast%2Bis%2Bnot%2Bthe%2Bwest%2Boliver%2B1971%26btnG%3DSearch%26hl%3Den%26gbv%3D2%26gs_l%3Dheirloom-serp.3...69 Accessed on 2012/04/03.

Sias, M. 1996. Constructing perception of differential treatment: an analysis of co-worker discourse. *Communication Monographs* 63:171-187.

Sidgwick, H. 2010. Sidgwick's hedonism. [O]. Available: http://www.henrysidgwick.com/3rd-paper.1st.congress.cat.eng.html Accessed on 2011/05/04.

Simon, AF. 2006. Computer-mediated communication: task performance and satisfaction. *Journal of Social Psychology* 146:349-379.

Simon, M. 2011. *Dissertation and scholarly research: recipes for success.* Seattle, WA: Dissertation Success, LLC.

Sincoff, M, Williams, D & Rohm, C. 1988. Steps in performing communication audit, in *Organisational communication*, edited by S. Furgson and S. Furgson. New Brunsk: Transaction: 575-590.

Smith, L. 2005. *Effective internal communication*. London: Kogan Page.

Smolkowski, K. 2012. Correlated errors in CFA and SEM models. [O]. Available: http://www.ori.org/~keiths/Files/Tips/Stats_SEMErrorCorrs.html Accessed on 2012/03/08.

Spector, PE. 1997. *Job satisfaction: application, assessment, causes, and consequences.* London: Sage.

Stanton, J, Sinar, E Balzer, E & Smith, W. 2002. Issues and strategies for reducing the length of self-help reports. *Personnel Psychology* 55(1):167-194.

Stephan, WG & Dorfman, PW. 1989. Administrative and developmental functions in performance appraisals: conflict or synergy? *Basic and Applied Social Psychology* 10:27-41.

Stephenson, M, Holbert, R & Zimmerman, R. 2006. On the use of structural equation modelling in health communication research. *Health Communication* 20(2):159-167.

Stevens, J. 1996. *Applied multivariate statistics for the social sciences*. Third edition. Mahwah, NJ: Lawrence Erlbaum.

Stevens, J. 2002. *Applied multivariate statistics for the social sciences*. Mahwah, NJ: Lawrence Erlbaum Associates.

Stevens, J. 2009. Structural equation modelling . [O]. Available: http://pages.uoregon.edu/stevensj/workshops/sem_slides6.pdf Accessed on 2011/02/03.

Suhr, D. 2009. The basics of structural equation modelling. [O]. Available: http://www.lexjansen.com/wuss/2006/tutorials/TUT-Suhr.pdf Accessed on 2011/01/03.

Sunnafrank, M. 1986. Communicative influences on perceived similarity and attraction: an expansion of the interpersonal goals perspective. *The Western Journal of Speech Communication* 50:158-170.

Switzer, G, Wisniewski, S, Belle, S, Dew, M & Schultz, R. 1999. Selecting, developing, and evaluating research instruments. *Social Psychiatry and Psychiatric Epidemiology* 34(1):399-409.

Tabachnick, G & Fidell, S. 2007. *Using multivariate statistics*. Sixth edition. Boston: Pearson.

Teijlingeh, E & Hundley, V. 2001. The importance of pilot studies*. Nursing Standard* 16(40):33-36.

Thayer, O. 1969. *Communication and communication systems*. Homewood, III: Richard D. Irwin.

Thibaut, JW & Kelley, HH. 1959. *The social psychology of groups.* New York: Wiley.

Thomas, G, Zolin, R & Hartman, J. 2009. The central role of communication in developing trust and its effect on employee involvement. *Journal of Business Communication* 46(3):287-310.

Thompson, B. 1984. *Canonical correlation analyses: uses and interpretation.* Thousand Oaks, CA: Sage.

Thompson, B & Daniel, LG. 1996. Factor analytic evidence for the construct validity of scores: a historical overview and some guidelines. *Educational and Psychological Measurement* 56*:*197-208.

Thompson, E & Phua, F. 2012. A brief index of affective job satisfaction. *Group Organisation Management* 3(37):275-307.

Tojib, R & Suglanto, L. 2006. Content validity of instruments in IS research. *Journal of Information Technology Theory and Application* 8(3):31-46.

Tompkins, PK & Wanca-Thibault, M. 2001. Organisational communication: prelude and prospects, in *The new handbook of organisational communication: advances in theory, research, and methods*, edited by FM. Jablin and LL. Putnam. Thousands Oaks, CA: Sage: xvii-xxxi.

Tourish, D. 1998. The god that failed: replacing visionary leadership with open communication. *Australian Journal of Communication* 25:99-114.

Tourish, D & Hargie, O. 2002. Communicating organisational success, in *Handbook of communication audits for organisations*, edited by O. Margie and D. Tourish. New York: Routledge: 3-21.

Tryfos, P. 2011. Chapter 14 factor analysis. [O]. Available: http://www.yorku.ca/ptryfos/f1400.pdf
Accessed on 2011/05/04.

Tubbs, S & Moss, S. 1977. *Human communication*. New York: Random House.

Turner, E. 1998. The effect of common variance and structure pattern on random data eigenvalues: implications for the accuracy of parallel analysis. *Educational Psychology Measures* 58(4):541-568.

Tyler, R & Bies, J. 1990. Beyond formal procedures: the interpersonal context of procedural justice, in *Applied social psychology and organisational settings*, edited by JS. Carrol. Hillsdale: Erlbaum: 77-98.

UT. 2011. Structural equation modelling using AMOS: an introduction. [O]. Available: http://www.utexas.edu/cc/stat/tutorials/amos/index.html
Accessed on 2011/09/04.

Ullman, J. 2001. Structural equation modelling, in *Using multivariate statistics*, edited by BG. Tabachnick and LS. Fidell. New York: Allyn & Bacon: 676–780.

Ullman, J. 2006. Structural equation modelling: reviewing the basics and moving forward. *Journal of Personality Assessment* 87(1):35–50.

UNFCCC/CCNUCC. 2012. General guidelines for sampling and surveys for small-scale cdm project activities. [O]. Available: http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid20.pdf
Accessed on 2012/04/12.

Unisa. 2007. Policy on research ethics. [O]. Available: http://www.unisa.ac.za/contents/research/docs/ResearchEthicsPolicy_apprvCounc_21Sept07.pdf
Accessed on 2012/01/09.

Van de Vijver, F & Leung, K. 1997. *Methods and data analysis for cross-cultural research.* London: Sage.

Van de Vliert, E, Shi, K, Sanders, K, Wang, Y & Huang, X. 2012. Chinese and Dutch interpretations of supervisory feedback. [O]. Available: http://www.shikanphd.org/download/hrm/Chinese%20and%20Dutch%20Interpretations%20of%20Supervisory%20Feedback.pdf
Accessed on 2012/03/07.

Van der Walt, L & Breet-van Niekerk, T. 2007. Assessing organisational communication, in *Integrated organisational communication*, edited by R. Barker and G. Angelopulo. Pretoria: Juta: 331-350.

Van Teijlingen, E & Hundley, V. 2001. The importance of pilot studies. [O]. Available: http://www.soc.surrey.ac.uk/sru/SRU35.htm
Accessed on 2012/06/13.

Varona, F. 1996. Relationship between communication satisfaction and organisational commitment in three Guatemalan organisations. *The Journal of Business Communication* 33(2):111-140.

Varona, F. 2002. Conceptualisation and management of communication satisfaction and organisational commitment in three Guatemalan organisations. *American Communication Journal* 5(3):1-17.

Vaux, A & Briggs, C. 2012. Conducting mail internet surveys, in *The psychology research handbook*, edited by FTL. Leong and J. Austin. Thousand Oaks, CA: Sage: 127-138.

Vavra, T. 1997. *Improving your measurement of customer satisfaction: a guide to creating, conducting, analyzing, and reporting customer satisfaction measurement programs*. New York: ASQ.

Velicer, WF & Jackson, DN. 1990. Component analysis versus common factor-analysis – some further observations. *Multivariate Behavioral Research* 25(1):97-114.

Walker, D. 2010. A confirmatory factor analysis of the attitudes toward research scale. [O]. Available: http://mlrv.ua.edu/2010/vol36_1/Walker_proof_2.pdf
Accessed on 2012/09/04.

Walt, S. 2006. Communication at ICG: the internal communication audit as an integrated measuring instrument. Unpublished MA thesis. Pretoria: University of South Africa.

Wang, W. 1998. The use of structural equation modelling techniques to predict violence potential in mentally ill prisoners. Unpublished PhD dissertation. Texas: Texas ATM University.

Wanous, L & Lawler, E. 1972. Measurement and meaning of job satisfaction. *Journal of Applied Psychology* 56(2):95-105.

Wasbeek, D. 2004. *Human resource management practices in selected Ethiopian private companies: a study to increase employee productivity in Ethiopia*. Florida: Universal.

Watkins, M. 2006. Determining parallel analysis criteria. *Journal of Modern Applied Statistical Methods* 5(2):344-346.

West, R & Turner, L. 2012. Introducing communication theory: analysis and application. [O]. Available: http://highered.mcgraw-hill.com/sites/0767430344/student_view0/ Accessed on 2012/05/04.

West, SG, Finch, JF & Curran, PJ. 1995. Structural equation models with nonnormal variables: problems and remedies, in *Structural equation modelling - concepts, issues, and applications*, edited by RH. Hoyle. Thousand Oaks, CA: Sage: 56-75.

Wheeless, A, Wheeless, E & Howard, D. 1984. The relationship of communication with supervisor and decision participation to employee job satisfaction. *Communication Quarterly* 32(3):222-232.

Whitener, E, Brodt, S, Korsgaard, M & Werner, J. 2006. Managers as initiators of trust: an exchange relationship framework for understanding managerial trustworthy behavior, in *Organisational trust*, edited by R. Kramer. Oxford: Oxford University Press: 111-139.

Wiener, N. 1954. *The human use of human beings.* Boston: Houghton Mifflin.

Wiio, O. 1978. *Contingencies of organisational communication*. Helsinki: Helsinki School of Economics Publications B-30.

Wilkens, P & Tim, P. 1978. Perceived communication inequity: a determinant of job satisfaction. *Journal of Management* 4(1):107-119.

Williams, B, Osman, A & Brown, T. 2010. Exploratory factor analysis: a first step guide for novices. *Journal of Emergency Primary Health Care* 8(3):1-13.

Wines, WA & Hamilton, III, JB. 2009. On changing organisational cultures by injecting new ideologies: the power of stories. *Journal of Business Ethnics* 89:433-447.

Witts, R. 1967. Company performance and interpersonal relations. *Industrial Management Review* 7:91-107.

Wong, C. 1999. *Marketing research.* Oxford: Butterworth-Heinemann.

Worthington, R & Whittaker, T. 2006. Scale development research: a content analysis and recommendations for best practices. *The Counseling Psychologist* 34(6):806-838.

Wright, DK. 1995. The role of corporate public relations executives in the future of employee communications. *Public Relations Review* 21(3):181-198.

Yammarino, FJ, Skinner, S & Childers, TL. 1991. Understanding mail survey response behavior. *Public Opinion Quarterly* 55:613-639.

Yukl, G. 1994. *Leadership in organizations.* Third edition. Englewood Cliffs, NJ: Prentice-Hall.

Zait, A & Bertea, P. 2011. Methods for testing discriminant validity. *Management Marketing* 9(2):218-224.

Zikmund, G. 2000. *Exploring marketing research.* Seventh edition. Fort Worth: Dryden Press.

Zirakzabeh, C. 1990. Theorising about workplace democracy, Robert Dahl and the cooperatives of Mondragón. *Journal of Theoretical Politics* 2(1):109-126.

Zwick, WR & Velicer, WF. 1986. Factor influencing five rules for determining the number of components to retain. *Psychological Bulletin* 99:432-442.

Zwijze-Koning, K & De Jong, M. 2007. Evaluating the communication satisfaction questionnaire as a communication audit tool. *Management Communication Quarterly* 20(3):261-282.

Annexure A: Educational status of respondents in EFA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	missed value	32	12.1	12.2	12.2
	MA/MS or Above	29	11.0	11.0	23.2
	College degree	175	66.3	66.5	89.7
	Completed some college	26	9.8	9.9	99.6
	High School	1	.4	.4	100.0
	Total	263	99.6	100.0	
Missing	System	1	.4		
Total		264	100.0		

Annexure B: Gender composition of respondents in EFA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	58	22.0	24.1	24.1
	Male	183	69.3	75.9	100.0
	Total	241	91.3	100.0	
Missing	System	23	8.7		
Total		264	100.0		

Annexure C: Age profile of respondents in EFA

N	Valid	243
	Missing	20
Mean		33.11
Std. Error of Mean		.563
Median		30.00
Mode		26
Std. Deviation		8.772
Variance		76.942
Range		38
Minimum		21
Maximum		59
Sum		8046

Annexure D: Communalities in EFA

Communalities		
	Initial	Extraction
Extent to which my supervisor listens and pays attention to me.	.967	.468
Extent to which information about how my job performance compares with others.	.838	.563
Extent to which the social information communication is active in my workplace	.941	.726
Extent to which my workplace communication motivates me to meet its goals	.873	.657
Extent to which I trust my colleagues	.948	.854
Extent to which I am satisfied with my pay.	.962	.895
Extent to which my supervisor offers guidance for solving job-related problems.	.934	.782
Extent to which I am given information about how I am being judged.	.889	.748
Extent to which communication practices are flexible to suit organisational emergencies.	.951	.750
Extent to which employees in this organisation have great ability as communicators	.940	.504
Extent to which I trust my supervisor	.953	.772
Extent to which I have chances for promotion and advancement.	.872	.599
Extent to which communication with other employees at my level is accurate and free flowing.	.974	.683
Extent to which I receive recognition of my efforts.	.988	.944
Extent to which my supervisor provides reliable information to me.	.943	.792
Extent to which communication in the organisation makes me identify with it or feel a vital part of it	.924	.562
Extent to which my supervisor is honest with me.	.956	.854
Extent to which I participate in decisions concerning my work	.964	.826
Extent to which informal communication is active and accurate.	.846	.577
Extent to which I receive reports on how problems in my job are being handled. .	.926	.811
Extent to which my supervisor is open to ideas.	.970	.839
Extent to which I receive in time the information needed to do my job.	.880	.719
Extent to which I trust top management.	.900	.648
Extent to which I feel secure about my job.	.976	.759
Extent to which my work group is well-matched/compatible.	.937	.586
Extent to which my managers/ supervisors understand the problems faced by staff.	.925	.815
Extent to which the amount of supervision given me is right.	.946	.747
Extent to which conflicts are handled appropriately through proper communication channels.	.831	.653
Extent to which I feel free to disagree with my supervisor	.960	.564
Extent to which I like my job in this sub-city organisation	.945	.772
Extraction Method: Principal Axis Factoring.		

Annexure E: Total variance explained for pilot study

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	12.518	41.727	41.727	12.227	40.756	40.756	8.664
2	2.776	9.253	50.980	2.461	8.205	48.961	8.265
3	2.361	7.870	58.850	2.064	6.879	55.840	6.266
4	1.855	6.185	65.034	1.556	5.187	61.027	5.014
5	1.465	4.884	69.918	1.127	3.756	64.783	4.956
6	1.360	4.534	74.452	1.070	3.568	68.351	3.903
7	1.051	3.503	77.956				
8	.984	3.281	81.236				
9	.857	2.857	84.093				
10	.716	2.388	86.481				
11	.607	2.025	88.505				
12	.594	1.981	90.487				
13	.438	1.461	91.948				
14	.401	1.337	93.285				
15	.365	1.218	94.503				
16	.315	1.052	95.555				
17	.238	.794	96.349				
18	.224	.746	97.095				
19	.184	.614	97.708				
20	.175	.584	98.292				
21	.113	.378	98.670				
22	.107	.357	99.027				
23	.080	.267	99.293				
24	.071	.238	99.531				
25	.050	.167	99.698				
26	.037	.122	99.821				
27	.021	.070	99.891				
28	.018	.060	99.951				
29	.011	.038	99.988				
30	.003	.012	100.000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Annexure F: Pilot six-factor pattern matrix

	Factor					
	1	2	3	4	5	6
Extent to which my supervisor is open to ideas.	.847					
Extent to which I trust my supervisor	.818					
Extent to which my supervisor is honest with me.	.798					
Extent to which my supervisor provides reliable information to me.	.771					
Extent to which I trust top management.	.699					
Extent to which my supervisor offers guidance for solving job-related problems.	.573			.443		
Extent to which my managers/ supervisors understand the problems faced by staff.	.439	.371			.438	
Extent to which the amount of supervision given me is right.	.413				.395	.401
Extent to which the social information communication is active in my workplace		.757				
Extent to which I participate in decisions concerning my work		.757				
Extent to which communication with other employees at my level is accurate and free flowing.		.715				-.337
Extent to which I receive reports on how problems in my job are being handled. .		.581		-.363		
Extent to which information about how my job performance compares with others.		.572				.320
Extent to which informal communication is active and accurate.		.549				
Extent to which communication in the organisation makes me identify with it or feel a vital part of it		.533			-.338	
Extent to which I am given information about how I am being judged.		.464		.344		
Extent to which employees in this organisation have great ability as communicators		.461	.374			
Extent to which my work group is well-matched/compatible.		.447				
Extent to which I like my job in this sub-city organisation			.749			
Extent to which I receive recognition of my efforts.	.547		.675			
Extent to which I feel secure about my job.	.424		.605			
Extent to which I receive in time the information needed to do my job.		.492	.509			
Extent to which I have chances for promotion and advancement.			.484			.353
Extent to which I trust my colleagues				.888		
Extent to which my workplace communication motivates me to meet its goals				.557		
Extent to which my supervisor listens and pays attention to me.				.483		
Extent to which conflicts are handled appropriately through proper communication channels.					.795	
Extent to which I feel free to disagree with my supervisor				.301	.498	
Extent to which communication practices are flexible to suit organisational emergencies.		.420			.455	
Extent to which I am satisfied with my pay.						.921

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 16 iterations.

Annexure G: Pilot reliability report

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.949	.949	30

Annexure H: Covariances and correlations

s

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance
Item Variances	2.830	2.265	3.402	1.138	1.502	.088
Inter-Item Covariances	1.387	.743	2.138	1.395	2.878	.093
Inter-Item Correlations	.489	.263	.714	.451	2.718	.008

Annexure I: Pilot case processing summary

		N	%
Cases	Valid	35	70.0
	Excluded	15	30.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Annexure J: Comparison of parallel analysis and SPSS eigenvalues

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	14.394	47.981	47.981	13.999	46.662	46.662	11.540
2	1.680	5.599	53.579	1.267	4.224	50.886	9.843
3	1.348	4.494	58.073	.940	3.133	54.019	8.594
4	1.164	3.880	61.954	.754	2.512	56.531	8.780
5	1.092	3.642	65.595	.649	2.164	58.695	10.722
6	.850	2.835	68.430				
7	.739	2.463	70.893				
8	.674	2.247	73.139				
9	.617	2.057	75.196				
10	.606	2.019	77.215				
11	.557	1.857	79.073				
12	.552	1.839	80.912				
13	.513	1.709	82.621				
14	.488	1.626	84.247				
15	.431	1.438	85.685				
16	.416	1.387	87.072				
17	.400	1.335	88.407				
18	.370	1.232	89.639				
19	.359	1.198	90.837				
20	.352	1.173	92.010				
21	.332	1.106	93.117				
22	.311	1.038	94.154				
23	.279	.931	95.085				
24	.266	.888	95.973				
25	.236	.787	96.761				
26	.220	.732	97.493				
27	.217	.723	98.216				
28	.199	.663	98.878				
29	.174	.581	99.459				
30	.162	.541	100.000				

Extraction method: principal axis factoring.
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

SPSS values and parallel analysis weights taken as criteria to limit number of factors to extract

Parallel analysis			SPSS
1.000000	1.677572	1.749016	14.394
2.000000	1.592458	1.667312	1.680
3.000000	1.518081	1.579510	1.348
4.000000	1.455317	1.503094	1.164
5.000000	1.396911	1.448128	1.092
6.000000	1.344095	1.389424	
7.000000	1.302072	1.346604	
8.000000	1.253500	1.299932	
9.000000	1.207999	1.245635	
10.000000	1.169638	1.205495	
11.000000	1.133156	1.169116	
12.000000	1.095013	1.130907	
13.000000	1.055373	1.085601	
14.000000	1.014349	1.051245	
15.000000	0.982842	1.018500	

Annexure K: Descriptive statistics (skewness and kurtosis)

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Extent to which I am satisfied with my pay item6 JS.	264	.316	.150	-1.231	.299
Extent to which I have chances for promotion and advancement Item12 JS.	264	-.078	.150	-1.158	.299
Extent to which I trust top management Item23 RT.	264	-.107	.150	-.697	.299
Extent to which I like my job in this sub-city organisation Item30 JS	264	-.270	.150	-1.111	.299
Extent to which the amount of supervision given me is right Item27 SC.	264	-.196	.150	-.783	.299
Extent to which I receive reports on how problems in my job are being handled Item20 PF. .	264	-.443	.150	-.627	.299
Extent to which my managers/ supervisors understand the problems faced by staff Item26 PF.	264	-.466	.150	-.595	.299
Extent to which my workplace communication motivates me to meet its goals item4 CC	264	-.342	.150	-.971	.299
Extent to which I feel free to disagree with my supervisor Item29 RT	264	-.331	.150	-.789	.299
Extent to which conflicts are handled appropriately through proper communication channels Item28 CC.	264	-.377	.150	-.799	.299
Extent to which communication practices are flexible to suit organisational emergencies Item9 HC.	264	-.485	.150	-.463	.299
Extent to which my supervisor offers guidance for solving job-related problems item7 SC.	264	-.390	.150	-.878	.299
Extent to which communication in the organisation makes me identify with it or feel a vital part of it Item16 CC	264	-.413	.150	-.257	.299
Extent to which I feel secure about my job Item24 JS.	264	-.447	.150	-.710	.299
Extent to which I receive recognition of my efforts item14 PF.	264	-.465	.150	-.665	.299
Extent to which employees in this organisation have great ability as communicators Item10 CC	264	-.566	.150	-.491	.299
Extent to which I receive in time the information needed to do my job Item22 CC.	264	-.467	.150	-.558	.299

Extent to which my supervisor provides reliable information to me Item15 SC.	264	-.492	.150	-.646	.299
Extent to which informal communication is active and accurate item19 HC.	264	-.365	.150	-.520	.299
Extent to which I am given information about how I am being judged Item8 PF.	264	-.543	.150	-.499	.299
Extent to which my work group is well-matched/compatible Item25 HC.	264	-.553	.150	-.360	.299
Extent to which I trust my supervisor Item11 RT	264	-.553	.150	-.543	.299
Extent to which my supervisor is honest with me Item17 RT.	264	-.449	.150	-.645	.299
Extent to which communication with other employees at my level is accurate and free flowing item13 HC.	264	-.598	.150	-.459	.299
Extent to which the social information communication is active in my workplace item3 HC	264	-.701	.150	-.470	.299
Extent to which information about how my job performance compares with others item2 PF.	264	-.678	.150	-.508	.299

Extent to which I participate in decisions concerning my work Item18 JS	264	-.740	.150	-.229	.299
Extent to which my supervisor listens and pays attention to me item1 SC	264	-.743	.150	-.417	.299
Extent to which my supervisor is open to ideas Item21 SC.	264	-.743	.150	-.164	.299
Extent to which I trust my colleagues Item5 RT	264	-.789	.150	.019	.299
Valid N (listwise)	264				

Annexure L: Respondent age (CFA study sample)

N	Valid	270
	Missing	18
Mean		33.53
Std. Error of Mean		.531
Median		32.00
Mode		25a
Std. Deviation		8.719
Variance		76.012
Range		39
Minimum		20
Maximum		59
Sum		9052

Annexure M: Educational level (CFA sample)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	3	1.0	1.2	1.2
	Completed some college	35	12.2	13.6	14.8
	College degree	188	65.3	73.2	87.9
	MA/MS or Above	31	10.8	12.1	100.0
	Total	257	89.2	100.0	
Missing	System	31	10.8		
Total		288	100.0		

Annexure N: Gender composition (CFA sample)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	191	66.3	72.6	72.6
	Female	72	25.0	27.4	100.0
	Total	263	91.3	100.0	
Missing	System	25	8.7		
Total		288	100.0		

Annexure O: Communalities (main two-factor solution)

	Initial	Extraction
Extent to which my supervisor listens and pays attention to me item1 SC	.599	.545
Extent to which information about how my job performance compares with others item2 PF.	.562	.449
Extent to which the social information communication is active in my workplace item3 HC	.654	.467
Extent to which my workplace communication motivates me to meet its goals item4 CC	.664	.532
Extent to which I trust my colleagues Item5 RT	.427	.287
Extent to which I am satisfied with my pay item6 JS.	.426	.323
Extent to which my supervisor offers guidance for solving job-related problems item7 SC.	.668	.584
Extent to which I am given information about how I am being judged Item8 PF.	.551	.401
Extent to which communication practices are flexible to suit organisational emergencies Item9 HC.	.619	.523
Extent to which employees in this organisation have great ability as communicators Item10 CC	.560	.456
Extent to which I trust my supervisor Item11 RT	.739	.684
Extent to which I have chances for promotion and advancement Item12 JS.	.505	.406
Extent to which communication with other employees at my level is accurate and free flowing item13 HC.	.515	.390
Extent to which I receive recognition of my efforts item14 PF.	.575	.456
Extent to which my supervisor provides reliable information to me Item15 SC.	.742	.696
Extent to which communication in the organisation makes me identify with it or feel a vital part of it Item16 CC	.605	.554
Extent to which my supervisor is honest with me Item17 RT.	.718	.732
Extent to which I participate in decisions concerning my work Item18 JS	.646	.594
Extent to which informal communication is active and accurate item19 HC.	.502	.365
Extent to which I receive reports on how problems in my job are being handled Item20 PF. .	.598	.569
Extent to which my supervisor is open to ideas Item21 SC.	.696	.688
Extent to which I receive in time the information needed to do my job Item22 CC.	.604	.522
Extent to which I trust top management Item23 RT.	.574	.506
Extent to which I feel secure about my job Item24 JS.	.535	.429
Extent to which my work group is well-matched/compatible Item25 HC.	.511	.407
Extent to which my managers/ supervisors understand the problems faced by staff Item26 PF.	.693	.564
Extent to which the amount of supervision given me is right Item27 SC.	.683	.564
Extent to which conflicts are handled appropriately through proper communication channels Item28 CC.	.617	.512
Extent to which I feel free to disagree with my supervisor Item29 RT	.576	.497
Extent to which I like my job in this sub-city organisation Item30 JS	.487	.421

Extraction Method: Principal Axis Factoring.

Annexure P: Total variance explained (two-factor main)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	14.394	47.981	47.981	13.919	46.398	46.398	12.705
2	1.680	5.599	53.579	1.204	4.012	50.410	12.113
3	1.348	4.494	58.073				
4	1.164	3.880	61.954				
5	1.092	3.642	65.595				
6	.850	2.835	68.430				
7	.739	2.463	70.893				
8	.674	2.247	73.139				
9	.617	2.057	75.196				
10	.606	2.019	77.215				
11	.557	1.857	79.073				
12	.552	1.839	80.912				
13	.513	1.709	82.621				
14	.488	1.626	84.247				
15	.431	1.438	85.685				
16	.416	1.387	87.072				
17	.400	1.335	88.407				
18	.370	1.232	89.639				
19	.359	1.198	90.837				
20	.352	1.173	92.010				
21	.332	1.106	93.117				
22	.311	1.038	94.154				
23	.279	.931	95.085				
24	.266	.888	95.973				
25	.236	.787	96.761				
26	.220	.732	97.493				
27	.217	.723	98.216				
28	.199	.663	98.878				
29	.174	.581	99.459				
30	.162	.541	100.000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Annexure Q: Variance for six-factor solution

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	14.394	47.981	47.981	14.016	46.720	46.720	11.312
2	1.680	5.599	53.579	1.280	4.266	50.985	9.962
3	1.348	4.494	58.073	.963	3.209	54.194	8.286
4	1.164	3.880	61.954	.763	2.543	56.737	10.347
5	1.092	3.642	65.595	.659	2.197	58.934	8.566
6	.850	2.835	68.430	.451	1.502	60.436	3.311
7	.739	2.463	70.893				
8	.674	2.247	73.139				
9	.617	2.057	75.196				
10	.606	2.019	77.215				
11	.557	1.857	79.073				
12	.552	1.839	80.912				
13	.513	1.709	82.621				
14	.488	1.626	84.247				
15	.431	1.438	85.685				
16	.416	1.387	87.072				
17	.400	1.335	88.407				
18	.370	1.232	89.639				
19	.359	1.198	90.837				
20	.352	1.173	92.010				
21	.332	1.106	93.117				
22	.311	1.038	94.154				
23	.279	.931	95.085				
24	.266	.888	95.973				
25	.236	.787	96.761				
26	.220	.732	97.493				
27	.217	.723	98.216				
28	.199	.663	98.878				
29	.174	.581	99.459				
30	.162	.541	100.000				

Extraction method: principal axis factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Annexure R: Two-factor model initial Amos output

Group number 1 (Group number 1)
Notes for Group (Group number 1)
The model is recursive.
Sample size = 277
Variable Summary (Group number 1)
Your model contains the following variables (Group number 1)
Observed, endogenous variables
q_2
q_3
q_4
q_5
q_6
q_7
q_8
q_9
q_1
q_10
q_11
q_12
q_13
q_14
q_15
q_16
q_17
Unobserved, exogenous variables
er2
er3
er4
er5
er6
er7
er8
er9
relational
er1
er10
er11
er12
er13
er14
er15
er16
er17
informational
Variable counts (Group number 1)

Number of variables in your model:	36
Number of observed variables:	17
Number of unobserved variables:	19
Number of exogenous variables:	19
Number of endogenous variables:	17

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	19	0	0	0	0	19

Labeled	0	0	0	0	0	0
Unlabeled	15	1	19	0	17	52
Total	34	1	19	0	17	71

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
q_17	1.000	7.000	-.034	-.234	-1.167	-3.964
q_16	1.000	7.000	-.325	-2.210	-.847	-2.877
q_15	1.000	7.000	-.464	-3.153	-.403	-1.370
q_14	1.000	7.000	-.335	-2.276	-.906	-3.076
q_13	1.000	7.000	-.329	-2.235	-.748	-2.540
q_12	1.000	7.000	-.338	-2.300	-.950	-3.229
q_11	1.000	7.000	-.343	-2.333	-.758	-2.575
q_10	1.000	7.000	-.471	-3.199	-.740	-2.515
q_1	1.000	7.000	-.564	-3.834	-.706	-2.400
q_9	1.000	7.000	-.265	-1.797	-.904	-3.073
q_8	1.000	7.000	-.142	-.966	-1.012	-3.439
q_7	1.000	7.000	-.353	-2.401	-.823	-2.794
q_6	1.000	7.000	-.409	-2.781	-.980	-3.329
q_5	1.000	7.000	-.572	-3.887	-.465	-1.578
q_4	1.000	7.000	-.315	-2.142	-.818	-2.780
q_3	1.000	7.000	-.165	-1.118	-1.076	-3.654
q_2	1.000	7.000	-.742	-5.040	.092	.312
Multivariate					63.189	20.689

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
252	57.043	.000	.001
217	44.389	.000	.003
196	43.891	.000	.000
106	43.493	.000	.000
222	42.616	.001	.000
75	42.111	.001	.000
97	41.884	.001	.000
77	38.911	.002	.000
17	38.901	.002	.000
188	38.749	.002	.000
186	38.615	.002	.000
95	37.647	.003	.000
56	37.118	.003	.000
244	36.008	.005	.000
19	34.612	.007	.000
172	34.388	.007	.000
170	33.520	.010	.000
64	33.494	.010	.000
89	33.319	.010	.000
194	32.811	.012	.000
67	32.639	.013	.000
137	32.262	.014	.000
45	32.153	.014	.000
238	32.011	.015	.000
138	31.971	.015	.000
218	31.593	.017	.000
270	31.529	.017	.000
227	31.159	.019	.000
212	30.754	.021	.000
55	30.738	.021	.000
184	30.728	.022	.000

144	30.200	.025	.000
118	29.796	.028	.000
52	29.607	.029	.000
104	29.594	.029	.000
219	29.009	.034	.000
220	28.918	.035	.000
226	28.856	.036	.000
259	28.467	.040	.000
112	28.338	.041	.000
199	28.182	.043	.000
37	28.092	.044	.000
269	26.760	.062	.000
7	26.677	.063	.000
21	26.442	.067	.000
154	26.258	.070	.000
163	26.232	.070	.000
116	25.804	.078	.000
34	25.679	.081	.000
215	25.654	.081	.000
247	25.527	.084	.000
136	25.402	.086	.000
175	25.365	.087	.000
66	25.351	.087	.000
240	25.187	.091	.000
9	25.117	.092	.000
36	24.815	.099	.000
167	24.657	.103	.000
132	24.482	.107	.000
232	24.453	.108	.000
38	24.313	.111	.000
121	23.962	.120	.000
153	23.499	.134	.000
251	23.444	.135	.000
13	23.228	.142	.000
155	23.152	.144	.000
131	23.077	.147	.000
241	22.758	.157	.000
22	22.755	.157	.000
149	22.663	.161	.000
110	22.575	.164	.000
206	22.372	.171	.000
62	22.353	.172	.000
26	22.039	.183	.000
156	22.033	.183	.000
47	22.005	.185	.000
10	21.977	.186	.000
147	21.925	.188	.000
145	21.496	.205	.001
204	21.343	.211	.001
224	21.208	.217	.002
161	21.192	.218	.001
213	21.049	.224	.002
123	20.934	.229	.003
11	20.834	.234	.003
114	20.825	.234	.002
243	20.584	.245	.006

141	20.126	.268 .037
68	20.099	.269 .031
266	19.923	.278 .049
162	19.909	.279 .040
59	19.822	.283 .043
248	19.754	.287 .044
14	19.744	.288 .034
148	19.667	.292 .036
51	19.082	.324 .227
76	19.023	.327 .226
16	19.009	.328 .197
73	18.786	.341 .302
102	18.786	.341 .260

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	170
Number of distinct parameters to be estimated:	52
Degrees of freedom (170 - 52):	118

Result (Default model)

Minimum was achieved

Chi-square = 325.237

Degrees of freedom = 118

Probability level = .000

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
q_1	<---	Relational	1.022	.086	11.823	***	par_1
q_3	<---	Relational	1.083	.087	12.460	***	par_2
q_4	<---	Relational	1.142	.085	13.363	***	par_3
q_6	<---	Relational	1.059	.091	11.676	***	par_4
q_8	<---	Relational	1.065	.087	12.204	***	par_5
q_9	<---	Relational	1.000				
q_11	<---	Informational	1.262	.125	10.068	***	par_6
q_12	<---	Informational	1.329	.134	9.912	***	par_7
q_13	<---	Informational	1.309	.129	10.167	***	par_8
q_14	<---	Informational	1.202	.126	9.507	***	par_9
q_16	<---	Informational	1.197	.123	9.757	***	par_10
q_17	<---	Informational	1.391	.143	9.733	***	par_11
q_15	<---	Informational	.909	.111	8.217	***	par_12
q_10	<---	Informational	1.000				
q_7	<---	Relational	1.102	.086	12.828	***	par_13
q_5	<---	Relational	.746	.081	9.227	***	par_14
q_2	<---	Relational	.691	.078	8.865	***	par_15

Standardised Regression Weights: (Group number 1 - Default model)

			Estimate
q_1	<---	relational	.732
q_3	<---	relational	.771
q_4	<---	relational	.827
q_6	<---	relational	.723
q_8	<---	relational	.755
q_9	<---	relational	.712

q_11	<---	informational	.763
q_12	<---	informational	.746
q_13	<---	informational	.774
q_14	<---	informational	.702
q_16	<---	informational	.729
q_17	<---	informational	.726
q_15	<---	informational	.578
q_10	<---	informational	.597
q_7	<---	relational	.794
q_5	<---	relational	.572
q_2	<---	relational	.549

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
q_1	4.650	.103	45.034	***	par_17
q_2	4.993	.093	53.737	***	par_18
q_3	4.155	.104	40.017	***	par_19
q_4	4.368	.102	42.798	***	par_20
q_5	4.682	.096	48.586	***	par_21
q_6	4.159	.108	38.394	***	par_22
q_7	4.440	.103	43.293	***	par_23
q_8	3.957	.104	37.986	***	par_24
q_9	4.141	.104	39.897	***	par_25
q_10	4.697	.097	48.651	***	par_26
q_11	4.123	.095	43.215	***	par_27
q_12	4.249	.103	41.337	***	par_28
q_13	4.224	.097	43.341	***	par_29
q_14	4.253	.099	43.101	***	par_30
q_15	4.495	.091	49.542	***	par_31
q_16	4.123	.095	43.528	***	par_32
q_17	3.866	.110	35.017	***	par_33

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
informational	<-->	relational	1.133	.154	7.373	***	par_16

Correlations: (Group number 1 - Default model)

			Estimate
informational	<-->	relational	.963

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
relational	1.508	.225	6.692	***	par_34
informational	.918	.173	5.317	***	par_35
er2	1.663	.146	11.423	***	par_36
er3	1.206	.113	10.637	***	par_37
er4	.909	.090	10.100	***	par_38
er5	1.725	.152	11.383	***	par_39
er6	1.546	.142	10.922	***	par_40
er7	1.074	.103	10.455	***	par_41
er8	1.286	.120	10.743	***	par_42
er9	1.465	.134	10.972	***	par_43
er1	1.366	.126	10.877	***	par_44
er10	1.655	.147	11.280	***	par_45
er11	1.049	.099	10.554	***	par_46
er12	1.294	.121	10.677	***	par_47
er13	1.050	.100	10.463	***	par_48
er14	1.361	.125	10.920	***	par_49
er15	1.513	.134	11.325	***	par_50
er16	1.161	.108	10.782	***	par_51

er17		1.590	.147	10.797	*** par_52

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
q_17	.527
q_16	.531
q_15	.334
q_14	.493
q_13	.599
q_12	.556
q_11	.582
q_10	.357
q_1	.536
q_9	.507
q_8	.571
q_7	.630
q_6	.522
q_5	.327
q_4	.684
q_3	.595
q_2	.302

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
er17	<-->	relational	10.862	.160
er17	<-->	informational	10.176	-.121
er12	<-->	er17	5.469	-.218
er11	<-->	er15	6.782	.210
er10	<-->	er17	9.715	-.322
er10	<-->	er15	5.616	.234
er10	<-->	er12	15.685	.371
er1	<-->	er14	8.347	-.254
er1	<-->	er12	4.674	.187
er9	<-->	er17	6.511	.251
er9	<-->	er12	6.752	-.232
er9	<-->	er10	11.549	-.335
er8	<-->	er17	23.631	.453
er8	<-->	er10	5.594	-.220
er8	<-->	er9	8.744	.262
er7	<-->	relational	11.011	.133
er7	<-->	informational	12.330	-.112
er7	<-->	er13	4.137	-.144
er7	<-->	er12	6.265	-.195
er7	<-->	er11	5.937	-.172
er7	<-->	er9	7.486	.224
er6	<-->	relational	16.434	-.194
er6	<-->	informational	18.306	.162
er6	<-->	er16	4.373	.181
er6	<-->	er12	6.240	.230
er6	<-->	er11	6.183	.207
er6	<-->	er7	4.472	-.178
er5	<-->	relational	8.351	-.145
er5	<-->	informational	9.257	.121
er5	<-->	er17	4.437	-.221
er5	<-->	er15	16.170	.404
er5	<-->	er10	29.057	.567
er5	<-->	er9	4.373	-.209

er5	<-->	er6	4.031	.207
er4	<-->	er15	4.566	-.164
er4	<-->	er1	4.597	.159
er4	<-->	er7	10.956	.221
er4	<-->	er6	5.888	-.191
er4	<-->	er5	11.137	-.273
er3	<-->	er15	4.488	-.183
er3	<-->	er12	4.910	.182
er3	<-->	er5	5.198	-.210
er3	<-->	er4	6.004	.172
er2	<-->	er17	6.697	-.267
er2	<-->	er10	10.743	.338
er2	<-->	er6	5.751	-.242
er2	<-->	er5	10.564	.341

Variances: (Group number 1 - Default model)

M.I. Par Change

Regression Weights: (Group number 1 - Default model)

M.I. Par Change

Means: (Group number 1 - Default model)

M.I. Par Change

Intercepts: (Group number 1 - Default model)

M.I. Par Change

Minimization History (Default model)

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	5		-1.183	9999.000	2727.309	0	9999.000
1	e*	4		-1.459	2.871	1069.326	19	.347
2	e*	1		-.040	.356	812.353	6	.902
3	e	0	3855.724		.879	440.407	6	.879
4	e	0	675.065		1.473	425.345	3	.000
5	e	0	1865.507		.680	337.824	1	1.065
6	e	0	3712.792		.291	326.747	1	1.127
7	e	0	4610.512		.130	325.407	1	1.166
8	e	0	4762.594		.062	325.243	1	1.101
9	e	0	4643.182		.011	325.237	1	1.024
10	e	0	4748.527		.000	325.237	1	1.001

Bootstrap (Default model)

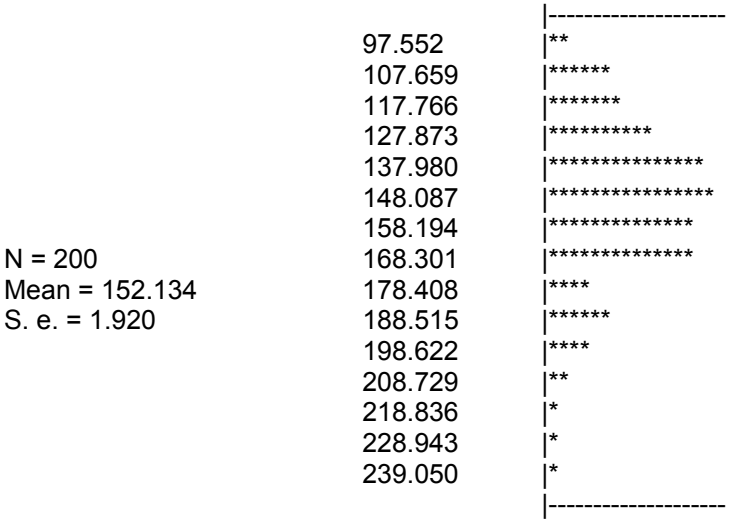
Summary of Bootstrap Iterations (Default model)

(Default model)

Iterations	Method 0	Method 1	Method 2
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	1	0
6	0	7	0
7	0	28	0
8	0	49	0
9	0	32	0
10	0	28	0
11	0	20	0
12	0	18	0
13	0	2	0
14	0	3	0
15	0	7	0

16	0	2	0
17	0	1	0
18	0	0	0
19	0	2	0
Total	0	200	0

0 bootstrap samples were unused because of a singular covariance matrix.
0 bootstrap samples were unused because a solution was not found.
200 usable bootstrap samples were obtained.
Bollen-Stine Bootstrap (Default model)
The model fit better in 200 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .005
Bootstrap distributions (Default model)
ML discrepancy (implied versus sample) (Default model)



Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	52	325.237	118	.000	2.756
Saturated model	170	.000	0		
Independence model	34	2866.582	136	.000	21.078

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.887	.869	.925	.913	.924
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.868	.769	.802
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	207.237	157.342	264.789
Saturated model	.000	.000	.000
Independence model	2730.582	2560.162	2908.341

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.178	.751	.570	.959
Saturated model	.000	.000	.000	.000
Independence model	10.386	9.893	9.276	10.537

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.080	.070	.090	.000
Independence model	.270	.261	.278	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	429.237	436.493		
Saturated model	340.000	363.721		
Independence model	2934.582	2939.326		

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.555	1.374	1.764	1.581
Saturated model	1.232	1.232	1.232	1.318
Independence model	10.633	10.015	11.277	10.650

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	123	133
Independence model	16	18

Execution time summary

Minimization:	.016
Miscellaneous:	.796
Bootstrap:	.313
Total:	1.125

Annexure S: Amos output for respecified model

Analysis Summary

Amos output of two factor model revised after MIs
Notes
Bootstrap confidence intervals are not available when the Bollen-Stine bootstrap is performed.
Groups
Group number 1 (Group number 1)
Notes for Group (Group number 1)
The model is recursive.
Sample size = 277
Variable Summary (Group number 1)
Your model contains the following variables (Group number 1)
Observed, endogenous variables
q_2
q_3
q_4
q_5
q_6
q_7
q_8
q_9
q_1
q_10
q_11
q_12
q_13
q_14
q_15
q_16
q_17
Unobserved, exogenous variables
er2
er3
er4
er5
er6
er7
er8
er9
relational
er1
er10
er11
er12
er13
er14
er15
er16
er17
informational
Variable counts (Group number 1)

Number of variables in your model:	36
Number of observed variables:	17
Number of unobserved variables:	19

Number of exogenous variables: 19
Number of endogenous variables: 17

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	19	0	0	0	0	19
Labeled	0	0	0	0	0	0
Unlabeled	15	3	19	0	0	37
Total	34	3	19	0	0	56

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
q_17	1.000	7.000	-.034	-.234	-1.167	-3.964
q_16	1.000	7.000	-.325	-2.210	-.847	-2.877
q_15	1.000	7.000	-.464	-3.153	-.403	-1.370
q_14	1.000	7.000	-.335	-2.276	-.906	-3.076
q_13	1.000	7.000	-.329	-2.235	-.748	-2.540
q_12	1.000	7.000	-.338	-2.300	-.950	-3.229
q_11	1.000	7.000	-.343	-2.333	-.758	-2.575
q_10	1.000	7.000	-.471	-3.199	-.740	-2.515
q_1	1.000	7.000	-.564	-3.834	-.706	-2.400
q_9	1.000	7.000	-.265	-1.797	-.904	-3.073
q_8	1.000	7.000	-.142	-.966	-1.012	-3.439
q_7	1.000	7.000	-.353	-2.401	-.823	-2.794
q_6	1.000	7.000	-.409	-2.781	-.980	-3.329
q_5	1.000	7.000	-.572	-3.887	-.465	-1.578
q_4	1.000	7.000	-.315	-2.142	-.818	-2.780
q_3	1.000	7.000	-.165	-1.118	-1.076	-3.654
q_2	1.000	7.000	-.742	-5.040	.092	.312
Multivariate					63.189	20.689

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
252	57.043	.000	.001
217	44.389	.000	.003
196	43.891	.000	.000
106	43.493	.000	.000
222	42.616	.001	.000
75	42.111	.001	.000
97	41.884	.001	.000
77	38.911	.002	.000
17	38.901	.002	.000
188	38.749	.002	.000
186	38.615	.002	.000
95	37.647	.003	.000
56	37.118	.003	.000
244	36.008	.005	.000
19	34.612	.007	.000
172	34.388	.007	.000
170	33.520	.010	.000
64	33.494	.010	.000
89	33.319	.010	.000
194	32.811	.012	.000
67	32.639	.013	.000
137	32.262	.014	.000
45	32.153	.014	.000
238	32.011	.015	.000
138	31.971	.015	.000
218	31.593	.017	.000

270	31.529	.017	.000
227	31.159	.019	.000
212	30.754	.021	.000
55	30.738	.021	.000
184	30.728	.022	.000
144	30.200	.025	.000
118	29.796	.028	.000
52	29.607	.029	.000
104	29.594	.029	.000
219	29.009	.034	.000
220	28.918	.035	.000
226	28.856	.036	.000
259	28.467	.040	.000
112	28.338	.041	.000
199	28.182	.043	.000
37	28.092	.044	.000
269	26.760	.062	.000
7	26.677	.063	.000
21	26.442	.067	.000
154	26.258	.070	.000
163	26.232	.070	.000
116	25.804	.078	.000
34	25.679	.081	.000
215	25.654	.081	.000
247	25.527	.084	.000
136	25.402	.086	.000
175	25.365	.087	.000
66	25.351	.087	.000
240	25.187	.091	.000
9	25.117	.092	.000
36	24.815	.099	.000
167	24.657	.103	.000
132	24.482	.107	.000
232	24.453	.108	.000
38	24.313	.111	.000
121	23.962	.120	.000
153	23.499	.134	.000
251	23.444	.135	.000
13	23.228	.142	.000
155	23.152	.144	.000
131	23.077	.147	.000
241	22.758	.157	.000
22	22.755	.157	.000
149	22.663	.161	.000
110	22.575	.164	.000
206	22.372	.171	.000
62	22.353	.172	.000
26	22.039	.183	.000
156	22.033	.183	.000
47	22.005	.185	.000
10	21.977	.186	.000
147	21.925	.188	.000
145	21.496	.205	.001
204	21.343	.211	.001
224	21.208	.217	.002
161	21.192	.218	.001

213	21.049	.224 .002
123	20.934	.229 .003
11	20.834	.234 .003
114	20.825	.234 .002
243	20.584	.245 .006
141	20.126	.268 .037
68	20.099	.269 .031
266	19.923	.278 .049
162	19.909	.279 .040
59	19.822	.283 .043
248	19.754	.287 .044
14	19.744	.288 .034
148	19.667	.292 .036
51	19.082	.324 .227
76	19.023	.327 .226
16	19.009	.328 .197
73	18.786	.341 .302
102	18.786	.341 .260

Models
Default model (Default model)
Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments:	153
Number of distinct parameters to be estimated:	37
Degrees of freedom (153 - 37):	116

Result (Default model)
Minimum was achieved
Chi-square = 271.019
Degrees of freedom = 116
Probability level = .000
Group number 1 (Group number 1 - Default model)
Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
q_1	<---	relational	1.024	.087	11.814	***	par_1
q_3	<---	relational	1.089	.087	12.489	***	par_2
q_4	<---	relational	1.148	.086	13.395	***	par_3
q_6	<---	relational	1.057	.091	11.621	***	par_4
q_8	<---	relational	1.047	.087	12.014	***	par_5
q_9	<---	relational	1.000				
q_11	<---	informational	1.278	.128	9.964	***	par_6
q_12	<---	informational	1.349	.137	9.829	***	par_7
q_13	<---	informational	1.324	.132	10.055	***	par_8
q_14	<---	informational	1.216	.129	9.417	***	par_9
q_16	<---	informational	1.213	.125	9.670	***	par_10
q_17	<---	informational	1.388	.145	9.552	***	par_11
q_15	<---	informational	.918	.113	8.144	***	par_12
q_10	<---	informational	1.000				
q_7	<---	relational	1.103	.086	12.799	***	par_13
q_5	<---	relational	.741	.081	9.145	***	par_14
q_2	<---	relational	.692	.078	8.858	***	par_15

Standardised Regression Weights: (Group number 1 - Default model)

			Estimate
q_1	<---	relational	.733
q_3	<---	relational	.775
q_4	<---	relational	.831
q_6	<---	relational	.721
q_8	<---	relational	.745
q_9	<---	relational	.712
q_11	<---	informational	.764
q_12	<---	informational	.748
q_13	<---	informational	.774
q_14	<---	informational	.703
q_16	<---	informational	.730
q_17	<---	informational	.717
q_15	<---	informational	.577
q_10	<---	informational	.592
q_7	<---	relational	.794
q_5	<---	relational	.567
q_2	<---	relational	.550

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
relational	<-->	informational	1.117	.152	7.322	***	par_16
er8	<-->	er17	.454	.101	4.481	***	par_17
er5	<-->	er10	.561	.112	5.005	***	par_18

Correlations: (Group number 1 - Default model)

			Estimate
relational	<-->	informational	.961
er8	<-->	er17	.309
er5	<-->	er10	.329

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
relational	1.506	.225	6.680	***	par_19
informational	.897	.171	5.258	***	par_20
er2	1.662	.146	11.410	***	par_21
er3	1.189	.113	10.568	***	par_22
er4	.889	.089	9.985	***	par_23
er5	1.744	.153	11.377	***	par_24
er6	1.555	.143	10.900	***	par_25
er7	1.073	.103	10.406	***	par_26
er8	1.323	.123	10.765	***	par_27
er9	1.467	.134	10.944	***	par_28
er1	1.362	.126	10.838	***	par_29
er10	1.663	.148	11.272	***	par_30
er11	1.047	.100	10.499	***	par_31
er12	1.284	.121	10.615	***	par_32
er13	1.049	.101	10.409	***	par_33
er14	1.360	.125	10.882	***	par_34
er15	1.515	.134	11.308	***	par_35
er16	1.155	.108	10.732	***	par_36
er17	1.633	.151	10.805	***	par_37

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
q_17	.514
q_16	.533
q_15	.333
q_14	.494

q_13	.600
q_12	.560
q_11	.583
q_10	.350
q_1	.537
q_9	.507
q_8	.555
q_7	.631
q_6	.520
q_5	.322
q_4	.691
q_3	.600
q_2	.302

Matrices (Group number 1 - Default model)

Residual Covariances (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_1	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2
q_17	.005																
q_16	.044	.000															
q_15	-.045	.073	.000														
q_14	-.087	-.012	-.023	.000													
q_13	.014	-.013	-.100	.116	.000												
q_12	-.169	-.080	.054	.039	-.012	.000											
q_11	.018	-.009	.186	.058	.011	-.093	.000										
q_10	-.256	-.015	.229	.054	-.040	.338	.032	.012									
q_1	.095	-.103	-.015	-.245	-.053	.154	.000	.013	.000								
q_9	.275	.050	-.059	-.033	.000	-.205	-.004	-.312	-.024	.000							
q_8	.045	-.005	-.132	.073	.119	-.068	.031	-.168	-.046	.256	.021						
q_7	.134	.073	-.143	-.103	-.150	-.193	-.183	-.083	-.009	.191	.144	.000					
q_6	.257	.216	.173	-.068	.016	.263	.227	.063	-.131	-.033	-.035	-.147	.000				
q_5	-.097	.024	.397	.099	.051	.093	.072	.006	-.006	-.183	.034	-.022	.199	-.009			
q_4	.032	-.095	-.179	.015	.029	-.024	-.070	-.106	.119	.013	-.073	.166	-.161	-.230	.000		
q_3	-.024	.015	-.190	-.064	.056	.151	-.042	-.014	.107	-.139	-.090	-.032	.075	-.185	.121	.000	
q_2	-.170	.010	.085	.171	.026	.166	-.011	.334	-.023	-.142	-.091	.042	-.219	.327	.012	-.068	.000

Standardised Residual Covariances (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_1	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2
q_17	.017																
q_16	.224	.000															
q_15	-.249	.472	.000														
q_14	-.429	-.069	-.140	.000													
q_13	.068	-.076	-.623	.640	.000												
q_12	-.793	-.435	.321	.205	-.060	.000											
q_11	.088	-.052	1.183	.328	.061	-.498	.000										

1																				
q_10	-1.337	-.092	1.490	.316	-.235	1.880	.188	.055												
q_1	.449	-.563	-.087	-1.298	-.279	.774	.000	.075	.000											
q_9	1.296	.277	-.351	-.173	-.002	-1.032	-.020	-1.742	-.120	.000										
q_8	.197	-.027	-.777	.383	.622	-.337	.167	-.929	-.225	1.265	.083									
q_7	.626	.397	-.845	-.541	-.780	-.956	-.974	-.461	-.044	.940	.699	.000								
q_6	1.159	1.132	.984	-.344	.079	1.264	1.166	.334	-.626	-.158	-.167	-.690	.000							
q_5	-.510	.147	2.603	.584	.303	.520	.432	.033	-.032	-1.022	.189	-.123	1.059	-.039						
q_4	.147	-.513	-1.058	.079	.149	-.116	-.370	-.585	.580	.064	-.351	.795	-.753	-1.271	.000					
q_3	-.112	.078	-1.116	-.331	.288	.745	-.224	-.076	.521	-.678	-.433	-.154	.351	-1.015	.576	.000				
q_2	-.933	.063	.580	1.052	.162	.972	-.071	2.143	-.132	-.823	-.524	.246	-1.219	2.093	.071	-.392	.000			

Factor Score Weights (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_1	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2
informational	.048	.065	.038	.056	.078	.065	.076	.035	.033	.030	.018	.045	.030	.007	.056	.040	.018
relational	.018	.046	.026	.039	.055	.046	.053	.014	.070	.064	.068	.096	.063	.035	.121	.086	.039

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
er17	<-->	informational	5.153	-.079
er17	<-->	relational	5.523	.106
er11	<-->	er15	6.876	.212
er10	<-->	er12	15.730	.350
er1	<-->	er14	8.749	-.260
er1	<-->	er12	4.449	.182
er9	<-->	er17	4.054	.190
er9	<-->	er12	6.800	-.233
er9	<-->	er10	7.293	-.252
er8	<-->	er9	5.545	.200
er7	<-->	informational	11.112	-.104
er7	<-->	relational	9.875	.125
er7	<-->	er13	4.075	-.144
er7	<-->	er12	6.365	-.197
er7	<-->	er11	5.790	-.170
er7	<-->	er9	7.578	.226
er6	<-->	informational	18.873	.161
er6	<-->	relational	16.859	-.194
er6	<-->	er17	4.016	.195
er6	<-->	er16	4.339	.181
er6	<-->	er12	6.144	.228
er6	<-->	er11	6.213	.208
er6	<-->	er7	4.232	-.174
er5	<-->	er15	13.002	.343
er5	<-->	er6	4.664	.212
er4	<-->	er15	4.901	-.169
er4	<-->	er7	10.120	.211
er4	<-->	er6	6.385	-.198
er4	<-->	er5	9.239	-.234
er3	<-->	er15	4.746	-.188
er3	<-->	er12	4.313	.170
er3	<-->	er5	5.394	-.202
er3	<-->	er4	4.777	.152
er2	<-->	er17	4.266	-.204
er2	<-->	er10	5.816	.235
er2	<-->	er6	5.641	-.241

er2	<-->	er5	5.442	.232

Variances: (Group number 1 - Default model)

M.I. Par Change

Regression Weights: (Group number 1 - Default model)

			M.I.	Par Change
q_15	<---	q_5	10.596	.153
q_14	<---	q_1	4.213	-.087
q_12	<---	q_10	10.039	.141
q_11	<---	q_15	4.444	.091
q_10	<---	q_12	6.333	.110
q_1	<---	q_14	4.375	-.093
q_9	<---	q_10	6.830	-.123
q_9	<---	q_8	4.097	.088
q_6	<---	q_12	4.288	.094
q_6	<---	q_11	4.161	.100
q_5	<---	q_15	9.173	.153
q_4	<---	q_5	6.987	-.101
q_2	<---	q_10	7.963	.139
q_2	<---	q_5	7.255	.132

Minimization History (Default model)

Iteration	Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e 6		-1.267	9999.000	2727.309	0	9999.000
1	e 6		-1.104	2.601	1179.380	19	.372
2	e 4		-.190	.352	908.631	6	1.005
3	e 1		-.027	.163	806.393	5	.814
4	e 0	2646.327		1.034	458.644	8	.666
5	e 0	564.498		1.550	432.314	2	.000
6	e 0	1900.647		.635	295.897	1	1.182
7	e 0	4456.564		.272	273.103	1	1.151
8	e 0	5677.172		.082	271.074	1	1.092
9	e 0	5437.106		.019	271.019	1	1.028
10	e 0	5466.538		.001	271.019	1	1.003
11	e 0	5509.619		.000	271.019	1	1.000

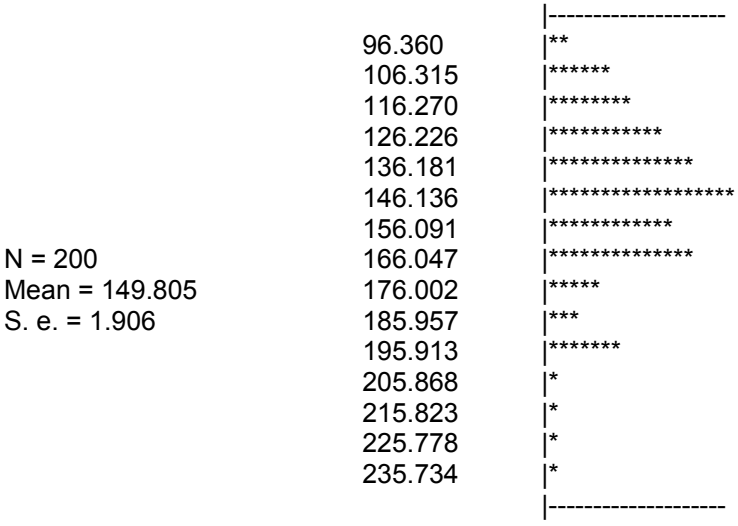
Summary of Bootstrap Iterations (Default model)

(Default model)

Iterations	Method 0	Method 1	Method 2
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	3	0
6	0	9	0
7	0	27	0
8	0	42	0
9	0	37	0
10	0	27	0
11	0	19	0
12	0	15	0
13	0	5	0
14	0	4	0
15	0	5	0
16	0	3	0

17	0	1	0
18	0	2	0
19	0	1	0
Total	0	200	0

0 bootstrap samples were unused because of a singular covariance matrix.
0 bootstrap samples were unused because a solution was not found.
200 usable bootstrap samples were obtained.
Bollen-Stine Bootstrap (Default model)
The model fit better in 200 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .005
Bootstrap Distributions (Default model)
ML discrepancy (implied versus sample) (Default model)



Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	37	271.019	116	.000	2.336
Saturated model	153	.000	0		
Independence model	17	2866.582	136	.000	21.078

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.125	.890	.855	.675
Saturated model	.000	1.000		
Independence model	1.331	.198	.098	.176

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.905	.889	.944	.933	.943
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.853	.772	.805
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	155.019	110.813	206.938
Saturated model	.000	.000	.000
Independence model	2730.582	2560.162	2908.341

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.982	.562	.401	.750
Saturated model	.000	.000	.000	.000
Independence model	10.386	9.893	9.276	10.537

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.070	.059	.080	.002
Independence model	.270	.261	.278	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	345.019	350.181	479.107	516.107
Saturated model	306.000	327.349	860.475	1013.475
Independence model	2900.582	2902.954	2962.190	2979.190

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.250	1.090	1.438	1.269
Saturated model	1.109	1.109	1.109	1.186
Independence model	10.509	9.892	11.153	10.518

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	145	158
Independence model	16	18

Execution time summary

Minimization:	.016
Miscellaneous:	.875
Bootstrap:	.250
Total:	1.141

Annexure T: One-factor model Amos output

One factor model output
Notes
Bootstrap confidence intervals are not available when the Bollen-Stine bootstrap is performed.
Groups
Group number 1 (Group number 1)
Notes for Group (Group number 1)
The model is recursive.
Sample size = 277
Variable Summary (Group number 1)
Your model contains the following variables (Group number 1)
Observed, endogenous variables
q_1
q_2
q_3
q_4
q_5
q_6
q_7
q_8
q_9
q_10
q_11
q_12
q_13
q_14
q_15
q_16
q_17
Unobserved, exogenous variables
relational
err1
err2
err3
err4
err5
err6
err7
err8
err9
err10
err11
err12
err13
err14
err15
err16
err17

Variable counts (Group number 1)

Number of variables in your model:	35
Number of observed variables:	17
Number of unobserved variables:	18
Number of exogenous variables:	18
Number of endogenous variables:	17

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	18	0	0	0	0	18
Labeled	0	0	0	0	0	0
Unlabeled	16	0	18	0	0	34
Total	34	0	18	0	0	52

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
q_17	1.000	7.000	-.034	-.234	-1.167	-3.964
q_16	1.000	7.000	-.325	-2.210	-.847	-2.877
q_15	1.000	7.000	-.464	-3.153	-.403	-1.370
q_14	1.000	7.000	-.335	-2.276	-.906	-3.076
q_13	1.000	7.000	-.329	-2.235	-.748	-2.540
q_12	1.000	7.000	-.338	-2.300	-.950	-3.229
q_11	1.000	7.000	-.343	-2.333	-.758	-2.575
q_10	1.000	7.000	-.471	-3.199	-.740	-2.515
q_9	1.000	7.000	-.265	-1.797	-.904	-3.073
q_8	1.000	7.000	-.142	-.966	-1.012	-3.439
q_7	1.000	7.000	-.353	-2.401	-.823	-2.794
q_6	1.000	7.000	-.409	-2.781	-.980	-3.329
q_5	1.000	7.000	-.572	-3.887	-.465	-1.578
q_4	1.000	7.000	-.315	-2.142	-.818	-2.780
q_3	1.000	7.000	-.165	-1.118	-1.076	-3.654
q_2	1.000	7.000	-.742	-5.040	.092	.312
q_1	1.000	7.000	-.564	-3.834	-.706	-2.400
Multivariate					63.189	20.689

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
252	57.043	.000	.001
217	44.389	.000	.003
196	43.891	.000	.000
106	43.493	.000	.000
222	42.616	.001	.000
75	42.111	.001	.000
97	41.884	.001	.000
77	38.911	.002	.000
17	38.901	.002	.000
188	38.749	.002	.000
186	38.615	.002	.000
95	37.647	.003	.000
56	37.118	.003	.000
244	36.008	.005	.000
19	34.612	.007	.000
172	34.388	.007	.000
170	33.520	.010	.000
64	33.494	.010	.000
89	33.319	.010	.000
194	32.811	.012	.000
67	32.639	.013	.000
137	32.262	.014	.000
45	32.153	.014	.000
238	32.011	.015	.000
138	31.971	.015	.000
218	31.593	.017	.000
270	31.529	.017	.000
227	31.159	.019	.000

212	30.754	.021	.000
55	30.738	.021	.000
184	30.728	.022	.000
144	30.200	.025	.000
118	29.796	.028	.000
52	29.607	.029	.000
104	29.594	.029	.000
219	29.009	.034	.000
220	28.918	.035	.000
226	28.856	.036	.000
259	28.467	.040	.000
112	28.338	.041	.000
199	28.182	.043	.000
37	28.092	.044	.000
269	26.760	.062	.000
7	26.677	.063	.000
21	26.442	.067	.000
154	26.258	.070	.000
163	26.232	.070	.000
116	25.804	.078	.000
34	25.679	.081	.000
215	25.654	.081	.000
247	25.527	.084	.000
136	25.402	.086	.000
175	25.365	.087	.000
66	25.351	.087	.000
240	25.187	.091	.000
9	25.117	.092	.000
36	24.815	.099	.000
167	24.657	.103	.000
132	24.482	.107	.000
232	24.453	.108	.000
38	24.313	.111	.000
121	23.962	.120	.000
153	23.499	.134	.000
251	23.444	.135	.000
13	23.228	.142	.000
155	23.152	.144	.000
131	23.077	.147	.000
241	22.758	.157	.000
22	22.755	.157	.000
149	22.663	.161	.000
110	22.575	.164	.000
206	22.372	.171	.000
62	22.353	.172	.000
26	22.039	.183	.000
156	22.033	.183	.000
47	22.005	.185	.000
10	21.977	.186	.000
147	21.925	.188	.000
145	21.496	.205	.001
204	21.343	.211	.001
224	21.208	.217	.002
161	21.192	.218	.001
213	21.049	.224	.002
123	20.934	.229	.003

11	20.834	.234	.003
114	20.825	.234	.002
243	20.584	.245	.006
141	20.126	.268	.037
68	20.099	.269	.031
266	19.923	.278	.049
162	19.909	.279	.040
59	19.822	.283	.043
248	19.754	.287	.044
14	19.744	.288	.034
148	19.667	.292	.036
51	19.082	.324	.227
76	19.023	.327	.226
16	19.009	.328	.197
73	18.786	.341	.302
102	18.786	.341	.260

Sample Moments (Group number 1)

Sample Covariances (Group number 1)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	3.365																
q_16	1.554	2.476															
q_15	1.099	1.073	2.272														
q_14	1.427	1.312	.980	2.687													
q_13	1.662	1.427	.990	1.561	2.621												
q_12	1.510	1.388	1.166	1.511	1.590	2.916											
q_11	1.608	1.382	1.239	1.453	1.528	1.453	2.512										
q_10	.988	1.073	1.053	1.145	1.147	1.548	1.178	2.572									
q_9	1.824	1.405	.966	1.325	1.478	1.301	1.423	.804	2.973								
q_8	2.121	1.413	.942	1.495	1.667	1.509	1.525	1.001	1.833	2.995							
q_7	1.842	1.567	.988	1.394	1.479	1.468	1.390	1.148	1.851	1.882	2.903						
q_6	1.895	1.648	1.257	1.368	1.578	1.856	1.735	1.243	1.559	1.631	1.609	3.238					
q_5	1.051	1.028	1.157	1.106	1.147	1.209	1.129	1.395	.933	1.203	1.209	1.379	2.563				
q_4	1.811	1.460	.998	1.575	1.726	1.706	1.569	1.177	1.742	1.738	2.072	1.667	1.052	2.875			
q_3	1.663	1.490	.927	1.416	1.666	1.792	1.512	1.202	1.502	1.628	1.776	1.809	1.031	2.004	2.976		
q_2	.902	.947	.794	1.110	1.049	1.208	.976	1.106	.900	1.000	1.191	.882	1.099	1.208	1.066	2.383	
q_1	1.682	1.285	1.036	1.146	1.461	1.697	1.462	1.157	1.519	1.570	1.692	1.500	1.138	1.891	1.787	1.044	2.942

Condition number = 39.663

Eigenvalues

25.274 3.196 2.185 1.992 1.764 1.479 1.425 1.273 1.209 1.195 1.074 1.044 .991 .952 .886 .696 .637

Determinant of sample covariance matrix = 997.607

Sample Correlations (Group number 1)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	1.000																
q_16	.539	1.000															
q_1	.397	.452	1.000														

5
q_14 .475 .509 .397 1.000
q_13 .559 .560 .406 .588 1.000
q_12 .482 .517 .453 .540 .575 1.000
q_11 .553 .554 .519 .559 .596 .537 1.000
q_10 .336 .425 .435 .436 .442 .565 .463 1.000
q_9 .577 .518 .372 .469 .529 .442 .521 .291 1.000
q_8 .668 .519 .361 .527 .595 .511 .556 .361 .614 1.000
q_7 .589 .584 .385 .499 .536 .504 .515 .420 .630 .638 1.000
q_6 .574 .582 .464 .464 .542 .604 .608 .431 .502 .524 .525 1.000
q_5 .358 .408 .480 .421 .442 .442 .445 .543 .338 .434 .443 .479 1.000
q_4 .582 .547 .391 .567 .629 .589 .584 .433 .596 .592 .717 .546 .388 1.000
q_3 .526 .549 .356 .501 .596 .608 .553 .435 .505 .545 .604 .583 .373 .685 1.000
q_2 .318 .390 .341 .439 .420 .458 .399 .447 .338 .374 .453 .318 .445 .462 .400 1.000
q_1 .535 .476 .401 .408 .526 .579 .538 .421 .513 .529 .579 .486 .414 .650 .604 .394 1.000
Condition number = 40.237
Eigenvalues
8.985 1.185 .811 .701 .649 .564 .522 .466 .445 .417 .405 .390 .365 .325 .303 .243 .223
Models
Default model (Default model)
Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments:	153
Number of distinct parameters to be estimated:	34
Degrees of freedom (153 - 34):	119

Result (Default model)
Minimum was achieved
Chi-square = 336.467
Degrees of freedom = 119
Probability level = .000
Group number 1 (Group number 1 - Default model)
Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
q_1	<---	relational	1.000				
q_2	<---	relational	.685	.076	9.018	***	par_1
q_3	<---	relational	1.063	.084	12.663	***	par_2
q_4	<---	relational	1.113	.082	13.529	***	par_3
q_5	<---	relational	.747	.079	9.490	***	par_4
q_6	<---	relational	1.060	.088	12.086	***	par_5
q_7	<---	relational	1.067	.083	12.888	***	par_6
q_8	<---	relational	1.049	.084	12.454	***	par_7
q_9	<---	relational	.977	.084	11.611	***	par_8
q_10	<---	relational	.757	.079	9.607	***	par_9
q_11	<---	relational	.959	.077	12.428	***	par_10
q_12	<---	relational	1.017	.083	12.223	***	par_11
q_13	<---	relational	.997	.079	12.656	***	par_12
q_14	<---	relational	.909	.080	11.353	***	par_13
q_15	<---	relational	.685	.074	9.239	***	par_14

q_16	<---	relational	.915	.077	11.919	***	par_15
q_17	<---	relational	1.079	.089	12.066	***	par_16

Standardised Regression Weights: (Group number 1 - Default model)

			Estimate
q_1	<---	relational	.724
q_2	<---	relational	.551
q_3	<---	relational	.765
q_4	<---	relational	.815
q_5	<---	relational	.579
q_6	<---	relational	.731
q_7	<---	relational	.778
q_8	<---	relational	.753
q_9	<---	relational	.704
q_10	<---	relational	.586
q_11	<---	relational	.751
q_12	<---	relational	.739
q_13	<---	relational	.764
q_14	<---	relational	.689
q_15	<---	relational	.564
q_16	<---	relational	.722
q_17	<---	relational	.730

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
relational	1.541	.224	6.866	***	par_17
err1	1.401	.127	11.044	***	par_18
err2	1.660	.145	11.469	***	par_19
err3	1.236	.114	10.846	***	par_20
err4	.968	.092	10.485	***	par_21
err5	1.705	.149	11.425	***	par_22
err6	1.507	.137	11.012	***	par_23
err7	1.147	.107	10.768	***	par_24
err8	1.298	.119	10.911	***	par_25
err9	1.501	.135	11.120	***	par_26
err10	1.690	.148	11.414	***	par_27
err11	1.095	.100	10.919	***	par_28
err12	1.323	.120	10.977	***	par_29
err13	1.090	.100	10.848	***	par_30
err14	1.413	.126	11.171	***	par_31
err15	1.549	.135	11.450	***	par_32
err16	1.187	.107	11.053	***	par_33
err17	1.571	.143	11.017	***	par_34

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
q_17	.533
q_16	.521
q_15	.318
q_14	.474
q_13	.584
q_12	.546
q_11	.564
q_10	.343
q_9	.495
q_8	.566
q_7	.605
q_6	.535
q_5	.335

q_4 .663
q_3 .585
q_2 .303
q_1 .524

Matrices (Group number 1 - Default model)

Implied Covariances (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	3.365																
q_16	1.521	2.476															
q_15	1.138	.965	2.272														
q_14	1.512	1.282	.959	2.687													
q_13	1.657	1.405	1.052	1.397	2.621												
q_12	1.691	1.433	1.073	1.425	1.562	2.916											
q_11	1.594	1.352	1.012	1.344	1.473	1.503	2.512										
q_10	1.258	1.067	.798	1.060	1.162	1.186	1.118	2.572									
q_9	1.625	1.377	1.031	1.369	1.501	1.532	1.444	1.140	2.973								
q_8	1.744	1.479	1.107	1.470	1.612	1.644	1.550	1.224	1.580	2.995							
q_7	1.775	1.505	1.126	1.496	1.640	1.673	1.578	1.245	1.608	1.726	2.903						
q_6	1.762	1.494	1.118	1.485	1.628	1.661	1.567	1.236	1.597	1.714	1.744	3.238					
q_5	1.241	1.052	.788	1.046	1.147	1.170	1.103	.871	1.124	1.207	1.228	1.219	2.563				
q_4	1.850	1.568	1.174	1.559	1.709	1.744	1.644	1.298	1.676	1.799	1.830	1.818	1.280	2.875			
q_3	1.767	1.498	1.121	1.489	1.632	1.665	1.570	1.239	1.600	1.718	1.748	1.736	1.222	1.822	2.976		
q_2	1.138	.965	.722	.959	1.052	1.073	1.012	.799	1.031	1.107	1.126	1.119	.788	1.174	1.121	2.383	
q_1	1.663	1.409	1.055	1.401	1.536	1.567	1.478	1.166	1.506	1.617	1.645	1.634	1.150	1.715	1.638	1.055	2.942

Implied Correlations (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	1.000																
q_16	.527	1.000															
q_15	.412	.407	1.000														
q_14	.503	.497	.388	1.000													
q_13	.558	.551	.431	.526	1.000												
q_12	.540	.533	.417	.509	.565	1.000											
q_11	.548	.542	.424	.517	.574	.555	1.000										
q_10	.428	.423	.330	.403	.448	.433	.440	1.000									
q_9	.514	.508	.397	.485	.538	.520	.529	.412	1.000								
q_8	.550	.543	.424	.518	.575	.556	.565	.441	.530	1.000							
q_7	.568	.561	.439	.535	.594	.575	.584	.456	.547	.585	1.000						
q_6	.534	.528	.412	.504	.559	.541	.549	.428	.515	.550	.569	1.000					
q_5	.423	.418	.326	.399	.442	.428	.435	.339	.407	.436	.450	.423	1.000				
q_4	.595	.588	.459	.561	.623	.602	.612	.477	.573	.613	.633	.596	.471	1.000			

q_3	.558	.552	.431	.527	.584	.565	.574	.448	.538	.576	.595	.559	.443	.623	1.000	
q_2	.402	.397	.311	.379	.421	.407	.414	.323	.387	.414	.428	.403	.319	.449	.421	1.000
q_1	.528	.522	.408	.498	.553	.535	.544	.424	.509	.545	.563	.529	.419	.589	.553	.399	1.000

Residual Covariances (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	.000																
q_16	.034	.000															
q_15	-.040	.108	.000														
q_14	-.084	.030	.020	.000													
q_13	.004	.022	-.061	.164	.000												
q_12	-.181	-.045	.093	.086	.028	.000											
q_11	.014	.030	.227	.109	.055	-.050	.000										
q_10	-.270	.007	.254	.085	-.015	.363	.060	.000									
q_9	.199	.028	-.065	-.044	-.024	-.231	-.021	-.335	.000								
q_8	.376	-.065	-.165	.025	.055	-.135	-.025	-.222	.253	.000							
q_7	.067	.062	-.138	-.102	-.161	-.205	-.188	-.097	.244	.156	.000						
q_6	.132	.154	.139	-.118	-.050	.195	.168	.007	-.038	-.082	-.135	.000					
q_5	-.190	-.024	.370	.060	.000	.039	.026	.524	-.191	-.004	-.019	.160	.000				
q_4	-.039	-.108	-.175	.016	.017	-.037	-.076	-.121	.067	-.061	.242	-.150	-.228	.000			
q_3	-.103	-.008	-.194	-.073	.033	.126	-.059	-.037	-.099	-.090	.028	.073	-.191	.182	.000		
q_2	-.237	-.018	.072	.151	-.003	.134	-.036	.308	-.131	-.107	.064	-.237	.311	.034	-.055	.000	
q_1	.020	-.125	-.019	-.255	-.075	.130	-.016	-.009	.013	-.047	.047	-.134	-.012	.176	.150	-.011	.000

Standardised Residual Covariances (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
q_17	.000																
q_16	.172	.000															
q_15	-.220	.700	.000														
q_14	-.417	.176	.128	.000													
q_13	.021	.128	-.383	.909	.000												
q_12	-.844	-.246	.552	.456	.148	.000											
q_11	.070	.178	1.455	.619	.311	-.267	.000										
q_10	-1.401	.041	1.658	.497	-.089	2.018	.357	.000									
q_9	.930	.151	-.384	-.233	-.125	-1.156	-.114	-1.863	.000								
q_8	1.726	-.351	-.967	.128	.283	-.664	-.133	-1.217	1.243	.000							
q_7	.312	.337	-.819	-.533	-.832	-1.014	-.996	-.536	1.209	.759	.000						
q_6	.588	.801	.786	-.591	-.250	.925	.860	.036	-.179	-.385	-.636	.000					
q_5	-.988	-.146	2.419	.350	.001	.219	.156	3.211	-1.067	-.022	-.108	.847	.000				
q_4	-.178	-.579	-1.036	.083	.088	-.184	-.399	-.666	.329	-.294	1.17 / 7	-.703	-1.261	.000			
q_3	-.474	-.042	-1.140	-.381	.171	.620	-.310	-.202	-.486	-.436	.138	.343	-1.052	.879	.000		

q_2 -1.290 -.117 .489 .925 -.020 .785 -.228 1.964 -.765 -.617 .374 -1.312 1.992 .199 -.317 .000
q_1 .093 -.679 -.113 -1.348 -.393 .651 -.086 -.049 .063 -.231 .234 -.637 -.070 .867 .735 -.063 .000

Factor Score Weights (Group number 1 - Default model)

	q_17	q_16	q_15	q_14	q_13	q_12	q_11	q_10	q_9	q_8	q_7	q_6	q_5	q_4	q_3	q_2	q_1
relational	.055	.061	.035	.051	.073	.061	.070	.036	.052	.064	.074	.056	.035	.091	.068	.033	.057

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
err13	<-->	err14	5.431	.185
err12	<-->	err17	4.904	-.204
err11	<-->	err15	9.204	.249
err10	<-->	err17	8.249	-.294
err10	<-->	err15	7.163	.267
err10	<-->	err12	17.750	.396
err9	<-->	err17	5.168	.222
err9	<-->	err12	8.296	-.258
err9	<-->	err10	13.225	-.362
err8	<-->	err17	21.726	.427
err8	<-->	err15	4.091	-.181
err8	<-->	err10	6.832	-.244
err8	<-->	err9	10.173	.284
err7	<-->	err13	6.627	-.187
err7	<-->	err12	8.792	-.236
err7	<-->	err11	8.935	-.217
err7	<-->	err9	10.826	.277
err7	<-->	err8	5.217	.180
err6	<-->	err16	4.123	.173
err6	<-->	err12	5.914	.220
err6	<-->	err11	5.383	.191
err5	<-->	err17	4.037	-.207
err5	<-->	err15	15.004	.388
err5	<-->	err10	27.746	.553
err5	<-->	err9	4.270	-.207
err4	<-->	err15	6.443	-.200
err4	<-->	err7	17.457	.290
err4	<-->	err6	5.028	-.177
err4	<-->	err5	9.901	-.260
err3	<-->	err15	6.000	-.214
err3	<-->	err5	5.290	-.211
err3	<-->	err4	9.121	.217
err2	<-->	err17	6.444	-.257
err2	<-->	err10	9.778	.323
err2	<-->	err6	6.706	-.257
err2	<-->	err5	9.906	.326
err1	<-->	err14	10.037	-.283
err1	<-->	err4	7.404	.206
err1	<-->	err3	4.062	.170

Variances: (Group number 1 - Default model)

M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

			M.I.	Par Change
q_17	<---	q_10	5.282	-.111
q_17	<---	q_8	8.825	.134
q_17	<---	q_2	4.396	-.106
q_15	<---	q_10	4.582	.101
q_15	<---	q_5	9.725	.148

q_14	<---	q_1	4.523	-.091
q_12	<---	q_10	11.367	.150
q_11	<---	q_15	6.137	.107
q_10	<---	q_15	4.771	.115
q_10	<---	q_12	7.564	.128
q_10	<---	q_9	6.349	-.116
q_10	<---	q_5	17.985	.210
q_10	<---	q_2	6.664	.133
q_9	<---	q_10	8.466	-.137
q_9	<---	q_8	4.129	.089
q_8	<---	q_17	9.591	.120
q_8	<---	q_10	4.376	-.093
q_8	<---	q_9	4.895	.091
q_7	<---	q_9	5.213	.089
q_7	<---	q_4	5.330	.091
q_6	<---	q_2	4.574	-.106
q_5	<---	q_15	9.994	.167
q_5	<---	q_10	17.749	.209
q_5	<---	q_2	6.751	.134
q_4	<---	q_15	4.301	-.086
q_4	<---	q_7	6.417	.093
q_4	<---	q_5	6.432	-.099
q_3	<---	q_15	4.001	-.092
q_2	<---	q_10	6.254	.122
q_2	<---	q_5	6.421	.124
q_1	<---	q_14	5.048	-.101

Minimization History (Default model)

Iteration	Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e 2		-1.711	9999.000	2573.742	0	9999.000
1	e 2		-.062	4.051	847.275	19	.145
2	e 1		-.063	1.211	580.691	5	.534
3	e 0	98.198		1.265	383.489	6	.831
4	e 0	66.045		.405	344.024	1	1.189
5	e 0	63.069		.198	336.880	1	1.133
6	e 0	62.930		.071	336.469	1	1.047
7	e 0	59.488		.006	336.467	1	1.004
8	e 0	59.496		.000	336.467	1	1.000

Bootstrap (Default model)

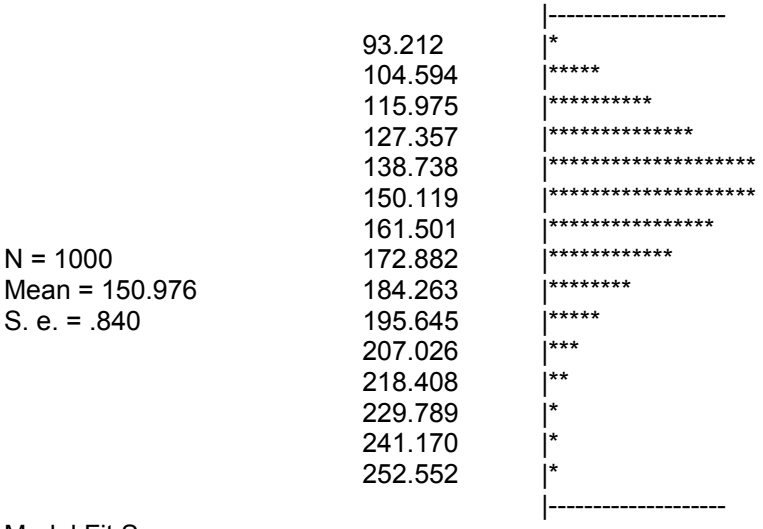
Summary of Bootstrap Iterations (Default model)

(Default model)

Iterations	Method 0	Method 1	Method 2
1	0	0	0
2	0	0	0
3	0	0	0
4	0	8	0
5	0	273	0
6	0	402	0
7	0	215	0
8	0	71	0
9	0	25	0
10	0	5	0
11	0	1	0
12	0	0	0
13	0	0	0

14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
Total	0	1000	0

0 bootstrap samples were unused because of a singular covariance matrix.
0 bootstrap samples were unused because a solution was not found.
1000 usable bootstrap samples were obtained.
Bollen-Stine Bootstrap (Default model)
The model fit better in 1000 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 0 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap p = .001
Bootstrap Distributions (Default model)
ML discrepancy (implied versus sample) (Default model)



Model Fit Summary

CMIN

Model	NPA R	CMIN	DF	P	CMIN/DF
Default model	34	336.467	119	.000	2.827
Saturated model	153	.000	0		
Independence model	17	2866.582	136	.000	21.078

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.136	.859	.818	.668
Saturated model	.000	1.000		
Independence model	1.331	.198	.098	.176

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.883	.866	.921	.909	.920
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.875	.772	.805
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	217.467	166.497	276.085
Saturated model	.000	.000	.000
Independence model	2730.582	2560.162	2908.341

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.219	.788	.603	1.000
Saturated model	.000	.000	.000	.000
Independence model	10.386	9.893	9.276	10.537

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.081	.071	.092	.000
Independence model	.270	.261	.278	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	404.467	409.211	527.684	561.684
Saturated model	306.000	327.349	860.475	1013.475
Independence model	2900.582	2902.954	2962.190	2979.190

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.465	1.281	1.678	1.483
Saturated model	1.109	1.109	1.109	1.186
Independence model	10.509	9.892	11.153	10.518

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	120	130
Independence model	16	18

Execution time summary

Minimization:	.015
Miscellaneous:	.751
Bootstrap:	.953
Total:	1.719

Annexure U: Original hybrid scale of communication satisfaction

University of South Africa

Doctoral Program in Communication Science

Organisational Communication Satisfaction Questionnaire for Civil Servants

General Information

This survey contains several questions intended to assess your perceptions and opinions about the communication in your workplace. The goal of this research is to gain a better understanding of some of the key organisational communication issues from the employees' perspective. Your answers will be very important in achieving this goal.

Confidentiality

Your responses to the questionnaire will be completely anonymous and confidential. Please do not write your name on the survey form. The survey results will be used entirely for academic and research purposes. It should take approximately 15 minutes to complete the brief survey. Please respond to all questions.

Voluntary

Your opinions are very valuable and I hope you will answer the questionnaire. However, participation is VOLUNTARY. You may withdraw or refuse to participate at any time, and any information you have provided will be withdrawn from the study as long as the data can be identified with you.

Instructions

Listed next page are several kinds of information/communication often associated with a person's job. Please indicate how satisfied you are with the amount and/or quality of each kind of information/communication by circling the appropriate number at the right.

Statement	Very Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Satisfied	Very satisfied
1. Extent to which my supervisor listens and pays attention to me.	1	2	3	4	5	6	7
2. Extent to which information about how my job performance compares with others'.	1	2	3	4	5	6	7
3. Extent to which the social information communication is active in my workplace.	1	2	3	4	5	6	7
4. Extent to which my workplace communication motivates me to meet its goals.	1	2	3	4	5	6	7
5. Extent to which I trust my colleagues	1	2	3	4	5	6	7
6. Extent to which I am satisfied with my pay.	1	2	3	4	5	6	7
7. Extent to which my supervisor offers guidance for solving job-related problems.	1	2	3	4	5	6	7
8. Extent to which I am given information about how I am being judged.	1	2	3	4	5	6	7
9. Extent to which communication practices are flexible to suit organisational emergencies.	1	2	3	4	5	6	7
10. Extent to which employees in this organisation have great ability as communicators.	1	2	3	4	5	6	7
11. Extent to which I trust my supervisor.	1	2	3	4	5	6	7
12. Extent to which I have chances for promotion and advancement.	1	2	3	4	5	6	7

Statement	Very Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Satisfied	Very satisfied
13. Extent to which communication with other employees at my level is accurate and free flowing.	1	2	3	4	5	6	7
14. Extent to which I receive recognition of my efforts.	1	2	3	4	5	6	7
15. Extent to which my supervisor provides reliable information to me.	1	2	3	4	5	6	7
16. Extent to which communication in the organisation makes me identify with it or feel a vital part of it.	1	2	3	4	5	6	7
17. Extent to which my supervisor is honest with me.	1	2	3	4	5	6	7
18. Extent to which I participate in decisions concerning my work.	1	2	3	4	5	6	7
19. Extent to which informal communication is active and accurate.	1	2	3	4	5	6	7
20. Extent to which I receive reports on how problems in my job are being handled. .	1	2	3	4	5	6	7
21. Extent to which my supervisor is open to ideas.	1	2	3	4	5	6	7
22. Extent to which I receive in time the information needed to do my job.	1	2	3	4	5	6	7
23. Extent to which I trust top management.	1	2	3	4	5	6	7
24. Extent to which I feel secure about my job.	1	2	3	4	5	6	7
25. Extent to which my work group is well-matched/compatible.	1	2	3	4	5	6	7
26. Extent to which my managers/ supervisors understand the problems faced by staff.	1	2	3	4	5	6	7

27. Extent to which the amount of supervision given me is right.	1	2	3	4	5	6	7
28. Extent to which conflicts are handled appropriately through proper communication channels.	1	2	3	4	5	6	7
29. Extent to which I feel free to disagree with my supervisor.	1	2	3	4	5	6	7
30. Extent to which I like my job in my workplace.	1	2	3	4	5	6	7

Demographic Items

31. What is your age? _____
32. What is your sex? M or F (circle answer).
33. How long have you been in your current position?
_____
34. How long have you worked for the organisation?
_____
35. Please indicate which best indicates your formal education. A. Did not finish high school, B. High School, C. Completed some college, D. College degree, E. MA/MS or Above

Thank you very much

Annexure Y (Final hybrid organisational communication satisfaction scale (17 items)

University of South Africa

Doctoral Program in Communication Science

Organisational Communication Satisfaction Questionnaire for Civil Servants

General Information

This survey contains several questions intended to assess your perceptions and opinions about the communication in your workplace. The goal of this research is to gain a better understanding of some of the key organisational communication issues from the employees' perspective. Your answers will be very important in achieving this goal.

Confidentiality

Your responses to the questionnaire will be completely anonymous and confidential. Please do not write your name on the survey form. The survey results will be used entirely for academic and research purposes. It should take approximately 15 minutes to complete the brief survey. Please respond to all questions.

Voluntary

Your opinions are very valuable and I hope you will answer the questionnaire. However, participation is VOLUNTARY. You may withdraw or refuse to participate at any time, and any information you have provided will be withdrawn from the study as long as the data can be identified with you.

Instructions

Listed next page are several kinds of information/communication often associated with a person's job. Please indicate how satisfied you are with the amount and/or quality of each kind of information/communication by circling the appropriate number at the right.

Statement	Very Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Satisfied	Very satisfied
1. Extent to which my supervisor listens and pays attention to me.	1	2	3	4	5	6	7
2. Extent to which I trust my colleagues	1	2	3	4	5	6	7
3. Extent to which my supervisor offers guidance for solving job-related problems.	1	2	3	4	5	6	7
4. Extent to which I trust my supervisor.	1	2	**3**	**4**	**5**	**6**	**7**
5. Extent to which communication with other employees at my level is accurate and free flowing.	1	2	3	4	5	6	7
6. Extent to which I receive recognition of my efforts.	1	2	3	4	5	6	7
7. Extent to which my supervisor is open to ideas.	1	2	3	4	5	6	7
8. Extent to which conflicts are handled appropriately through proper communication channels.	1	2	3	4	5	6	7
9. Extent to which I feel free to disagree with my supervisor.	1	2	3	4	5	6	7
10. Extent to which the social information communication is active in my workplace.	1	2	3	4	5	6	7
11. Extent to which communication in the organisation makes me identify with it or feel a vital part of it.	1	2	3	4	5	6	7
12. Extent to which my workplace communication motivates me to meet its goals.	1	2	3	4	5	6	7
13. Extent to which communication practices are flexible to suit organisational emergencies.	1	2	3	4	5	6	7
14. Extent to which employees in this organisation have great ability as communicators.	1	2	3	4	5	6	7

15. Extent to which informal communication is active and accurate.	1	2	3	4	5	6	7
16. Extent to which I receive reports on how problems in my job are being handled. .	1	2	3	4	5	6	7
17. Extent to which my managers/ supervisors understand the problems faced by staff.	1	2	3	4	5	6	7

Demographic Items

18. What is your age? _____
19. What is your sex? M or F (circle answer).
20. How long have you been in your current position?
_____
21. How long have you worked for the organisation?
_____
22. Please indicate which best indicates your formal education. A. Did not finish high school, B. High School, C. Completed some college, D. College degree, E. MA/MS or Above

Thank you very much

Annexure Z: Item-total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
Extent to which my supervisor listens and pays attention to me item1 SC	129.02	1086.479	.639	.599
Extent to which information about how my job performance compares with others item2 PF.	129.06	1088.533	.661	.562
Extent to which the social information communication is active in my workplace item3 HC	129.09	1083.905	.667	.654
Extent to which my workplace communication motivates me to meet its goals item4 CC	129.47	1080.220	.689	.664
Extent to which I trust my colleagues Item5 RT	128.81	1108.985	.508	.427
Extent to which I am satisfied with my pay item6 JS.	130.57	1102.428	.439	.426
Extent to which my supervisor offers guidance for solving job-related problems item7 SC.	129.42	1076.990	.727	.668
Extent to which I am given information about how I am being judged Item8 PF.	129.23	1095.975	.622	.551

Item-Total Statistics

	Cronbach's Alpha if Item Deleted
Extent to which my supervisor listens and pays attention to me item1 SC	.960
Extent to which information about how my job performance compares with others item2 PF.	.960
Extent to which the social information communication is active in my workplace item3 HC	.960
Extent to which my workplace communication motivates me to meet its goals item4 CC	.960
Extent to which I trust my colleagues Item5 RT	.961
Extent to which I am satisfied with my pay item6 JS.	.962
Extent to which my supervisor offers guidance for solving job-related problems item7 SC.	.959
Extent to which I am given information about how I am being judged Item8 PF.	.960

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
Extent to which communication practices are flexible to suit organisational emergencies Item9 HC.	129.43	1090.641	.687	.619
Extent to which employees in this organisation have great ability as communicators Item10 CC	129.35	1092.950	.648	.560
Extent to which I trust my supervisor Item11 RT	129.19	1078.742	.756	.739
Extent to which I have chances for promotion and advancement Item12 JS.	129.90	1090.796	.553	.505
Extent to which communication with other employees at my level is accurate and free flowing item13 HC.	129.09	1094.863	.607	.515
Extent to which I receive recognition of my efforts item14 PF.	129.36	1085.630	.663	.575
Extent to which my supervisor provides reliable information to me Item15 SC.	129.25	1076.211	.762	.742
Extent to which communication in the organisation makes me identify with it or feel a vital part of it Item16 CC	129.41	1090.981	.728	.605

Item-Total Statistics

	Cronbach's Alpha if Item Deleted
Extent to which communication practices are flexible to suit organisational emergencies Item9 HC.	.960
Extent to which employees in this organisation have great ability as communicators Item10 CC	.960
Extent to which I trust my supervisor Item11 RT	.959
Extent to which I have chances for promotion and advancement Item12 JS.	.961
Extent to which communication with other employees at my level is accurate and free flowing item13 HC.	.960
Extent to which I receive recognition of my efforts item14 PF.	.960
Extent to which my supervisor provides reliable information to me Item15 SC.	.959
Extent to which communication in the organisation makes me identify with it or feel a vital part of it Item16 CC	.959

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
Extent to which my supervisor is honest with me Item17 RT.	129.16	1081.607	.730	.718
Extent to which I participate in decisions concerning my work Item18 JS	129.02	1081.330	.711	.646
Extent to which informal communication is active and accurate item19 HC.	129.25	1103.958	.578	.502
Extent to which I receive reports on how problems in my job are being handled Item20 PF. .	129.50	1083.369	.737	.598
Extent to which my supervisor is open to ideas Item21 SC.	128.93	1080.113	.738	.696
Extent to which I receive in time the information needed to do my job Item22 CC.	129.27	1086.485	.704	.604
Extent to which I trust top management Item23 RT.	129.83	1087.610	.646	.574
Extent to which I feel secure about my job Item24 JS.	129.40	1087.975	.641	.535
Extent to which my work group is well-matched/compatible Item25 HC.	129.21	1094.576	.624	.511
Extent to which my managers/ supervisors understand the problems faced by staff Item26 PF.	129.49	1078.335	.734	.693

Item-Total Statistics

	Cronbach's Alpha if Item Deleted
Extent to which my supervisor is honest with me Item17 RT.	.959
Extent to which I participate in decisions concerning my work Item18 JS	.959
Extent to which informal communication is active and accurate item19 HC.	.960
Extent to which I receive reports on how problems in my job are being handled Item20 PF. .	.959
Extent to which my supervisor is open to ideas Item21 SC.	.959
Extent to which I receive in time the information needed to do my job Item22 CC.	.959
Extent to which I trust top management Item23 RT.	.960
Extent to which I feel secure about my job Item24 JS.	.960
Extent to which my work group is well-matched/compatible Item25 HC.	.960
Extent to which my managers/ supervisors understand the problems faced by staff Item26 PF.	.959

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
Extent to which the amount of supervision given me is right Item27 SC.	129.60	1083.557	.726	.683
Extent to which conflicts are handled appropriately through proper communication channels Item28 CC.	129.44	1084.041	.699	.617
Extent to which I feel free to disagree with my supervisor Item29 RT	129.45	1086.195	.680	.576
Extent to which I like my job in this sub-city organisation Item30 JS	129.66	1088.280	.553	.487

Item-Total Statistics

	Cronbach's Alpha if Item Deleted
Extent to which the amount of supervision given me is right Item27 SC.	.959
Extent to which conflicts are handled appropriately through proper communication channels Item28 CC.	.959
Extent to which I feel free to disagree with my supervisor Item29 RT	.960
Extent to which I like my job in this sub-city organisation Item30 JS	.961