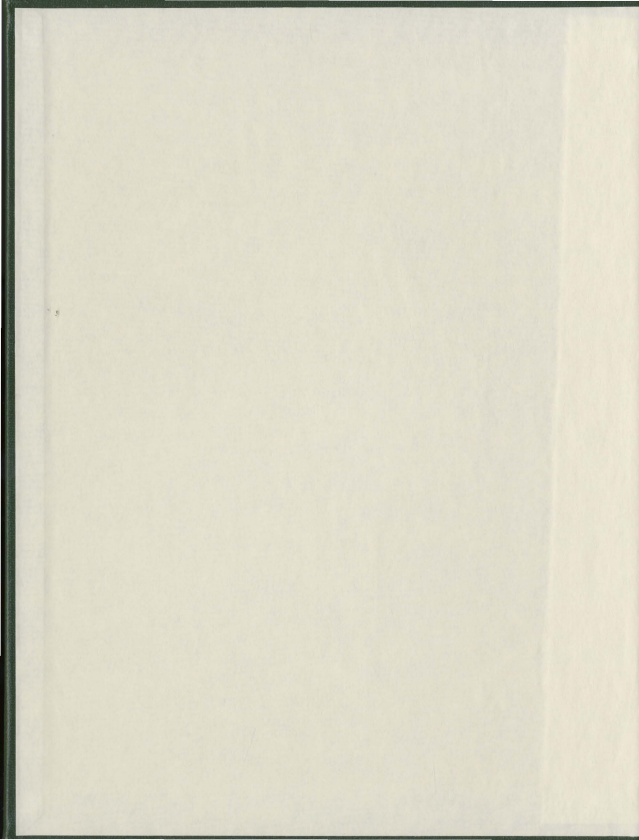# AN EMPIRICAL AND THEORETICAL INVESTIGATION OF THE FACTORS INFLUENCING NEWFOUNDLAND AND LABRADOR'S POST-SECONDARY INSTRUCTORS' DECISIONS TO ADOPT WEB 2.0 TECHNOLOGIES

RANYAH AL-TAAMNEH

AN EMPIRICAL AND THEORETICAL INVESTIGATION OF THE FACTORS INFLUENCING NEWFOUNDLAND AND LABRADOR'S POST-SECONDARY INSTRUCTORS' DECISIONS TO ADOPT WEB 2.0 TECHNOLOGIES

by

© Ranyah Al-Taamneh

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ABSTRACT

This study replicated the 2008 research of Ajjan and Hartshorne (1) to assess post-secondary instructors' awareness of the benefits of using Web 2.0 technologies in their classrooms instruction; (2) to investigate factors that influence post-secondary instructors' decisions to adopt Web 2.0 technologies to support classroom instruction using the Decomposed Theory of Planned Behaviour (DTPB).

A sample of 160 post-secondary instructors working in public colleges (College of North Atlantic) in Newfoundland and Labrador, Canada, were asked to fill out a web-based questionnaire. A path analysis model was applied to test the research hypothesis.

Consistent with Ajjan and Hartshorne's (2008) research, this study found that although the post-secondary instructors were aware of the educational benefits of using Web 2.0 technologies in their classrooms instruction, few of them frequently use Web 2.0 technologies in their classroom. As well, it was found that behavioral intention, attitude, subjective norm, perceived behavioral control, usefulness, ease of use, compatibility, superior influence, student influence, and self-efficacy were significant predictors of post-secondary instructors' usage of Web 2.0 technologies, while peer influence, technology, and resource conditions were not.

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Chapter One: Introduction

The transition of Web 2.0 technologies into the educational landscape has positively affected the learning and teaching process. Previous studies have examined the effectiveness of incorporating different Web 2.0 technologies in classroom learning (Nelson, Christopher and Mims (2009); Wang and Hsua (2008); Churchill, Wong, Law, Salter and Tai (2009)). Nelson and colleagues (2009) proposed that Web 2.0 technologies facilitate the development of lifelong skills, promote student learning, and enhance creative and collective contribution in the classroom. Consequently, researchers who focused on investigating the educational advantages of Web 2.0 contributed to providing educational actors with a significant outline to set up new strategies for teaching and learning as well as models that consider Web 2.0 technology for best learning.

The new emerging technologies (such as Web 2.0 technologies) have attracted the "digital natives" students who are interested in the technology race more than other traditional communication tools (Prensky, 2001). The free availability and usability of Web 2.0 technologies enable "digital natives" to use them in their daily lives. However, while students are sophisticated users of Web 2.0 tools, this usage is outside of the formal instructional requirements in higher education (Collis & Moonen 2008). This sophisticated usage of Web 2.0 indicates that the students are ready for using Web 2.0 technologies in their educational institutions (Collis & Moonen, 2008).

In the same context, despite the many advantages of Web 2.0 technologies in teaching and learning and students' readiness to use these technologies in their classrooms, "there is still an ignorance of educators as far as its [i.e. Web 2.0] adoption is

concerned" (Grosseck, 2009, p. 481). One factor behind this ignorance could be related to the educators' attitudes and inclinations toward using Web 2.0 technologies. It was expected that instructors' positive attitude to use Web 2.0 will positively influences their intention to use theses tools in their classrooms (Ajjan & Hartshorne, 2008). Therefore, educators' negative attitudes and inclinations toward using Web 2.0 technologies are likely to discourage them from using these technologies in classrooms. This is one of many other factors deterring educators from adopting Web 2.0 technologies in the classroom.

Currently, there has been little theoretical or empirical studies on how instructors at higher education institutions respond to using Web 2.0 technologies in classroom instructions. As well, there is little known about how instructors who teach in post-secondary education systems respond to use Web 2.0 technologies in their teaching.

1.1   Problem Statement

There is insufficient research and information on factors that predict post secondary instructors and trainers' intention to integrate Web 2.0 technologies into their face-to-face classroom to support teaching and learning. Hence, the intent for this study is to assess instructors' awareness of the benefits of using current web tools during classroom instruction and to investigate factors that influence instructors' decisions to adopt these same web tools (Web 2.0 and others) by using the decomposed theory of planned behavior (DTPB) (Taylor & Todd, 1995).

1.2   Research Questions and Hypotheses

The intent of this research is to address the following research questions:

1. Are post-secondary instructors and trainers aware of the benefits of using Web 2.0 technologies to support their classroom instructions?

2. What best factors predict post-secondary educators and trainers' decision to adopt Web 2.0 technologies to support their classroom instructions?

Thirteen alternate hypotheses and a survey instrument were used in order to answer the above mentioned research questions. The research hypotheses are as follows:

H1:   Attitude of users towards using Web 2.0 technologies has a positive effect on behavioral intentions.

H2:   Subjective norms of users with respect to usage of Web 2.0 technologies has a positive effect on behavioral intentions

H3:   Perceived behavioral control of users with respect to usage of Web 2.0 technologies has a positive effect on behavioral intentions.

H4:   Behavioral intention to use Web 2.0 technologies has a positive effect on behavior.

H5a: Perceived usefulness has a positive effect on attitudes towards usage of Web 2.0 technologies

H5b: Perceived ease of use has a positive effect on attitudes towards usage of Web 2.0 technologies.

H5c: Perceived compatibility has a positive effect on attitudes towards usage of Web 2.0 technologies.

H6a: Superior influence to use Web 2.0 technologies has a positive effect on subject norm.

H6b: Peer influence to use Web 2.0 technologies has a positive effect on subject norm.

H6c: Student influence to use Web 2.0 technologies has a positive effect on subject norm.

H7a: Self-efficacy of using Web 2.0 technologies has a positive effect on perceived behavioral control.

H7b: Facilitating resource conditions of using Web 2.0 technologies has a positive effect on perceived behavioral control.

H7c: Facilitating technology conditions of using Web 2.0 technologies has a positive effect on perceived behavioral control.

1.3 The Nature of the Research

This study uses a correlation method, where hypotheses and/or questions are used. A correlation study falls within the rubric of descriptive research because one is not introducing a treatment in order to test its effect upon a dependent variable; rather, one is conducting the study in order to asses the association of the variables as they are, without making efforts to manipulate them (Wiseman, 1999, p. 223).

According to Charles (1998) correlational research is used "when one wishes to explore descriptive or predictive relationships among two or more variables" (p.276). This research attempted to identify factors that predict post-secondary college educators

and trainers decision to adopt Web 2.0 technologies in their classroom instructions. Adopting/using Web 2.0 technologies by post-secondary instructors was the criterion variable, or the variable to be predicted. All other variables, which are the predictor variables, serve to predicate the criterion variable. The predictor variables included: behavioral intention, attitude, ease of use, perceived usefulness, subjective norm, perceived behavioral control, peer influence, superior influence, student influence, compatibility, facilitating conditions (technology and resources), and self-efficacy. "Once the criterion variable and predictor variables have been clarified, research questions and hypotheses are stated as appropriate" (Charles, 1998, p. 273). Then, to determine the degree of the relationship between two or more variables or how one variable may predict another, "[the] correlations between predictor and criterion variables should be calculated using the correlation procedure appropriate for the type of data obtained" (Charles, 1998, p. 275).

This correlational method research incorporated a survey instrument and utilized the DTPB as its theoretical framework. This study replicated Ajjan and Hartshorne's (2008) research; therefore, a quantitative approach was followed and a similar survey instrument was used. Also, the same theoretical framework and research questions were applied. Ajjan and Hartshorne (2008) had based their research survey items on Baylor and Ritchie (2002); Davis (1989); Taylor and Todd (1995) studies. Ajjan and Hartshorne (2008) developed the survey instrument based on the DTPB as its guiding framework.

The survey instrument for the current study consisted of a series of items using a five point Likert- type scale (strongly disagree to strongly agree) to examine factors that influence post secondary college educators and trainers intentions to utilize Web 2.0

technologies to support their classroom instructions. The items of the instrument considered factors such as actual usage, behavioral intention, attitude, ease of use, perceived usefulness, subjective norm, perceived behavioral control, peer influence, superior influence, student influence, compatibility, facilitating conditions (technology and resources), and self-efficacy.

1.4   Definitions

- **Web 2.0 tools** the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies (Wikipedia).

- **Web 2.0 technologies adoption** accept Web 2.0 technologies as new introduced technology and use it in individual's job.

- **Information technology** any electronic system that use technology to operate.

- **Post-secondary instructors** educators, instructors, trainers, or others who are in teaching position in post-secondary colleges.

- **Digital native** the persons who were born and grown up with the emerging technology around them (Prensky, 2001). These persons are sophisticated user of technology as they acquire technology in the same way they acquire their mother language.

- **Behavioural intention** represents the strength of an individual's willingness to perform a specific behavior (Ajzen, 1991; Fishbein & Ajzen, 1975).

- **Attitude** refers to an individuals' positive or negative perception about performing a specific behavior (Fishbein & Ajzen, 1975).

- **Subjective norm** defined as an individual's perception that most people who are important to him think he should or should not perform the behavior in question (Fishbein and Ajzen, 1975).

- **Perceived behavioural control** "the person's belief as to how easy or difficult performance of the behavior is likely to be." (Ajzen and Madden, 1986, p.457).

- **Expectancy-value theory** "The theory posits that an individual responds to new information about an action by developing a belief toward the action." (Cheon, Song, Jones, & Nam, 2010, p. 56).

- **Innovation Diffusion Theory** "According to [Innovation Diffusion Theory] IDT, innovations have five significant characteristics: relative advantage, compatibility, complexity, trialability and observability. These characteristics are used to explain the user adoption and decision-making processes" (Lai & Chen, 2011, p. 949).

1.5 Assumptions

The assumptions made in this research were as follows:

1. The results of the study will contribute to develop new strategies in the post-secondary educational system and enhance utilizing current World Wide Web technologies to achieve best learning and teaching.

2. The results of the study will contribute to prove the effectiveness of the use of DTPB for explaining how instructors respond to newly introduced instructional technology tools.

3. There is a group of responders aware of the benefits of using Web 2.0 technologies in their classrooms

4. There are a group of responders who would be freely able to convey a knowledgeable opinion regarding the advantages of using web 2.0 in teaching and learning process

5. Respondents will fully understand how to respond to the survey instrument and other on-line data gathering procedures and provide factual information in their responses.

Chapter Two: Literature Review and Theoretical Framework

This chapter include two sections: the literature review of Web 2.0 technologies and the theoretical framework for this study. The literature review discusses Web 2.0 technologies in terms of its definition and features, its rational in education, and its adoption in the context of education. The theoretical framework section includes three parts. First part introduces four theoretical models that are used in the literature to understand the individuals' behaviour with respect to information technology usage. The second part provides a review of literature on DTPB as this theory was the theoretical base for this research. Third part presents the research model and research hypotheses.

2.1 Literature Review

2.1.1 Definition and Features of Web 2.0 Technologies

The first appearance of the term *Web 2.0* was in the Brainstorm Conference session in 2004 by O'Reilly (O'Reilly, 2005). Web 2.0 refers to "the social use of the Web which allow[s] people to collaborate, to get actively involved in creating content, to generate knowledge and to share information online" (Grosseck, 2009, p. 478). Web 2.0 technologies allow "everyone to publish resources on the web using simple and open, personal and collaborative publishing tools, known as social software: blogs, wikis, social bookmarking systems, podcasts etc" (Grodecka, Pata & Väljataga, 2008, p. 10). Social collaboration of working online is possible and feasible, using free and user friendly Web 2.0 tools (Nelson et al., 2009). For example, blogs are seen as user friendly because the users of blogs do not need to have knowledge in HTML language in order to upload their

content into the internet (Godwin-Jones, 2003; Richardson, 2005-2006; Wang & Hsua, 2008)

With the emergence of Web 2.0 the content on the internet became dynamic and changing (Luo, 2010; Gillmor, 2007). This means that the users of Web 2.0 technologies are capable of creating their content and uploading it to the internet (write) to be accessible to other users (read). Consequently, the users would be involved in active creation processes rather than passive reception. In fact, this feature of Web 2.0 made many scholars (such as, Richardson, 2005-2006; Gillmor, 2007; Luo, 2010; Grodecka, et. al, 2008) refer to Web 2.0 technologies as read/write web.

The following section provides information about Web 2.0 technologies in terms of its supporting constructivist learning theory, their general educational advantages. Also, the following section will reviews four types of Web 2.0 technologies: blogs, wikis, social software, and social networks in terms of its definition, educational advantages, and software application examples

2.1.2   *Rationale for Web 2.0 Technologies in Education*

As Web 2.0 technologies provide users with opportunities for publication, collaboration, participation, and knowledge creation, they "share many synergies with social constructivist learning pedagogies" (Cochrane & Bateman, 2010, p. 3). The constructivist learning theory has become an important educational learning theory widely used in the teaching and learning contexts (Neo, 2005). In the constructivist-based learning environment, students reconstruct their own knowledge about the subject matter in social situations and in collaboration and interactive learning environments (Neo,

2005). In this context, students continually motivate one another and enhance their creative and critical thinking skills (Neo, 2005).

If collaborative learning is offered through an online environment, it will provide "more of the advantages that enable collaborative learning to be successful" (Hargis & Wilcox, 2008, p. 2). For example, Murphy, Drabier, & Epps (1998) indicated that asynchronous collaboration through online education increases learners' interaction, learning and satisfactions. Additionally, when students use conferencing through the computer to collaborate with their peers, they indicate that this helps them to advance academically, and then they feel that they are members of a large community (Murphy et al., 1998). Eventually, web-based communication technologies such as Web 2.0 technologies are capable of empowering active collaborative learning through allowing students to engage in collaborative and cooperative environments that help them to increase their learning (Hargis & Wilcox, 2008). Thus, Web 2.0 technologies support constructivist-based learning (Luo, 2010; Grodecka et al., 2008; Beldarrain, 2006). Therefore, "integration of Web 2.0 technologies, utilized by skillful teachers, can promote student learning and facilitate the development of lifelong skills such as collaboration, creative thinking and knowledge construction" ((Nelson et al., 2009, p. 80).

In fact, recent research regarded Web 2.0 technologies as a reflective educational tools that enhance students' learning. Conole (2010) pointed out that "Web 2.0 tools could be used in a variety of innovative ways with students to support their learning, but also they could provide a communication mechanism for teachers to share and discuss practice" (p142). Many researchers outlined several ideas and ways to incorporate Web

2.0 technologies into the classrooms (Churchill et al., 2009; Conole, 2010; Buffington, 2008; Oliver, 2010; among others.)

This study focused on four types of Web 2.0 technologies: blogs, wikis, social software, and social networks. The following table (Table 2-1) illustrates each one of these tools in terms of its definition, educational advantages, and software application examples.

Table 2-1: Definition of blogs, wikis, social networking, and social bookmarking, their educational advantages, and software application examples for each of them

Web 2.0 Technologies	Illustration
Blogs	**Definition**: A blog is a website published by either an individual or a group of individuals who are known as bloggers (Helpwithpcs.com, 2001). The term "blog" usually refers to personal journals or diaries where the users can post their writing about the topics they are interested in. The blogging system allows users to update their content frequently monthly, weekly or daily, and it allows other users to post comments or suggestions to enable the interaction between the blogger and the readers in a collaboration environment (Helpwithpcs.com, 2001). **Educational advantages:** - Blogs promote self-publishing which encourage ownership and responsibility on the part of learners (Godwin-Jones, 2003). - Blogs improve students writing skills (Wang & Hsua, 2008) and encourage them to articulate their ideas and thoughts in their best shape (Godwin-Jones, 2006). - Blogs empower useful feedback, which enhances students' critical thinking and stimulates students to become more thoughtful (Godwin-Jones, 2006) **Software application example:** - Google's Blogger http://blogger.com/ - Edublogs http://edublogs.org/ - Twitter http://twitter.com/
Wikis	**Definition**: Wiki refers to a collection of connected web pages that represent electronic collaborative work of multiple writers (Beldarraian, 2006). "Unlike blogs that are chronologically organized, wiki pages are loosely structured but are linked in different ways" (Beldarrain, 2006, p. 142). Godwin-Jones (2003) sees the goal of wiki web pages as an important shared source of knowledge and information, with an information base that accumulates over time. **Educational advantages:** - Wikis are capable of promoting students' interaction and engaging them in interactive collaborative learning environments where they can reconstruct their knowledge and increase their learning (Beldarrain, 2006).

	- Wikis help to build an environment of learner–centered education where students become "constructivist" writers who can raise their voice through expressing their different perspectives (Garza & Hern, 2005). - Wikis encourages students to write precisely and foster their writing skills. **Software application example:** - Wikipedia http://www.wikipedia.org/ - Wikispaces www.wikispaces.com/ - Google Docs http://documents.google.com/
Social networking	**Definition**: "Social networking sites are online spaces that can be customized to a large extent by their users, providing space for personal profiles, which users complete in order to make connections with others" (Gunawardena et al., 2009, p. 4). Social networking "allow people to visualize, interact with, and activate existing personal and professional networks, and to create connections with new ones unbounded by geographic distance" (Greenhow, 2011, p. 5). **Educational advantages:** - "social network sites can serve as direct and indirect supports for learning, such as providing an emotional outlet for school-related stress, validation of creative work, peer-alumni support for school-life transitions, and help with school-related tasks" (Greenhow, 2011, p. 4). - "online social networking can stimulate social and civic benefits, online and offline, which has implications for Education" (Greenhow, 2011, p. 4). **Software application example:** - Facebook www.facebook.com - Linkedin www.linkedin.com/ - MySpace www.myspace.com/ - Ning www.ning.com/
Social bookmarking	**Definition**: "Social bookmarking is a function that allows users to "tag" different websites with terms that are meaningful to the user. The user can then access these sites and the related tags from any computer with Internet access" (Buffington, 2008, p. 37). **Educational advantages:**

social bookmarking "enable[s] sharing of bookmarks/resources with others, as well as ranking and engaging in an extended dialogue and networking" (Churchill et al., 2009, p.143) which in turn support a sharing and collaborative learning environment.

Software application example:
- Del.icio.us http://del.icio.us/
- CiteUlike www.citeulike.org/
- Edtags http://edtags.otg/
- Diigo www.diigo.com/

2.1.3   Web 2.0 Technologies Adoption in the Context of Education

The previous section detailed the features of Web 2.0 technologies and their educational advantages which make them appropriate tools to be used in the classrooms. Despite the evident potential of Web 2.0 technologies in supporting teaching and learning, Web 2.0 technologies are not extensively used by educators in the classroom (Grosseck, 2009; Conole, 2010; Churchill et al., 2009; Roblyer, McDaniel, Webb, Herman & Witty, 2010). Few studies have focused on addressing the reasons behind this issue and went to theoretically investigate the factors that affect educators' intentions to adopt Web 2.0 technologies in their classrooms. For example, based on expectancy-value theory (Fishbein, 1963) and the technology acceptance model (TAM) (Davies, 1989), Cheon, Song, Jones, and Nam (2010) developed a conceptual model to investigate preservice teachers' intention to adopt Web 2.0 technologies in their future classrooms (See p. 7 for definition of expectancy-value theory and see p.18 for illustration of technology acceptance model (TAM)). The findings indicated that promoting of salient beliefs, such as ease of use, usefulness, and facilitation, will foster preservice teachers' intention to adopt Web 2.0 technologies. Cheon et al. (2010) suggested that their research

model be expanded in future research by including other beliefs such as preservice teachers' educational beliefs, which may serve the field of teacher education. Additionally they suggested applying their research model to investigate inservice teachers' intention to adopt Web 2.0 technologies in order to provide helpful direction for the professional development of teachers.

Lai and Chen (2011) extended Rogers' (1995) Innovation Diffusion Theory by developing a model to investigate factors that influence secondary school teachers' decisions in relation to teaching blogs adoption as well as the relative importance of these factors (See p. 7 for illustration of Innovation Diffusion Theory). They referred secondary school teachers to teachers who were in junior high schools, senior high schools and vocational high schools (Lai & Chen, 2011). The results indicated that the significant factors affecting whether secondary school teachers decide to adopt teaching blogs are (listed in descending order of ranked importance): perceived enjoyment, codification effort, compatibility, perceived ease of use, personal innovativeness, enjoyment in helping others, school support and perceived usefulness. Lai and Chen (2011) recommended that future research studies investigate other potential factors that affect teaching blog adoption, such as security and privacy concern.

Ajjan and Hartshorne (2008) investigated the factors that influence faculty members' adoption of Web 2.0 technologies using decomposed theory of planned behaviour (DTPB) as a theoretical foundation (See p. 19 for illustration of (DTPB)). They also investigated faculty awareness of the benefits of Web 2.0 technologies to be used in classroom learning. Data from the survey, which was designed using DTPB, indicated that;

most faculty feel that integrating Web 2.0 technologies such as blogs and
wikis into the classroom learning environment can be effective at increasing
students' satisfaction with the course, improve their learning and their writing
ability, and increase student interaction with other students and faculty […].
The results also indicate[d] that the faculty attitude and their perceived
behavioral control are strong predictors to their intention to use Web 2.0
(Ajjan & Hartshorne, 2008, p.79).

The researchers suggested that administrators should focus their attention on
improving the perceived usefulness, ease of use, compatibility of Web 2.0 applications,
and improving faculty's self-efficacy with these tools. The researchers' recommendations
are centered around implementing effective models to facilitate the adoption of Web 2.0
tools for best learning and teaching in higher education. A need for continued research to
collect data from multiple universities and colleges was also recommended by Ajjan and
Hartshorne (2008).

These studies provide useful information that helps in realizing the factors that
influence teachers/instructors' responses of new emergent technology (Web 2.0 tools) to
increase their use of them. However, they are viewed as evidence of a need for further
study. There is a relative lack of attention paid to understanding the factors that predict
instructors' adoption of new emergent technology (Web 2.0 tools) who teach in *post-
secondary* education systems. To fill this gap in the current literature, this research
continues Ajjan and Hartshorne (2008) study by applying the same research framework,
DTPB, and same survey instrument, as well as the same research questions on a different
population, namely, post-secondary college instructors.

2.2   Theoretical Framework

2.2.1   Theoretical Models

In the field of information technology, there are three popular theoretical frameworks used to predict users' intention toward using information technology: Davis' (1989) Technology Acceptance Model (TAM), Ajzen's (1991) Theory of Planned Behaviour (TPB), and Taylor and Todd (1995) Decomposed Theory of Planned Behaviour (DTPB). TAM and TPB were derived from Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) While DTPB were derived from TPB (Ajzen, 1991). This section will introduce each of these theoretical models: TAM, TPB, and DTPB. TRA was introduced also as it is the origin theory for TAM and TPB.

Theory of Reasoned Action (TRA)

A theory proposed by Fishbein and Ajzen (1975) for explaining and predicting individuals' behavioural intention to perform specific behaviour. The theory postulates that persons' behaviour is predicted by their behavioural intention. Then, persons' behavioural intention is predicted by their attitude toward performing the behavior and by their subjective norms. One limitation of this theory is that it did not deal with conditions where people have no control over their behavioral.

Technology Acceptance Model (TAM)

Based on the TRA(Fishbein and Ajzen,1975), Davis (1989) developed the TAM model for explaining and predicting users' acceptance of information technology. The theory postulate that the users' actual usage of information technology influenced by their behavioral intention. While behavioral intention influenced by attitude toward the

behaviour, users' attitude influenced by their perceived usefulness and their perceived ease of use. In this model the influence of social and personal control factors on behavior were excluded (Taylor & Todd, 1995).

Theory of Planned Behaviour (TPB)

Based on TRA (Fishbein & Ajzen,1975), Ajzen (1991) developed TPB to deal with conditions where peoples have no control over their behaviour (Taylor & Todd, 1995). TPB takes into account the influence of social and personal control factors on behavior which they are excluded in TAM. This, might increase the understanding of user behavior (Taylor & Todd, 1995). The TPB theoretical model postulates that the person's behavior is determined by his/her behavioural intention, while behavioral intention is determined by person's attitude toward the behaviour, his/her subjective norm, and his/her perceived behavioural control.

Decomposed Theory of Planned Behaviour (DTPB)

Taylor and Todd (1995) developed the TPB by decomposing the belief structures (attitude, subjective norm, and perceived behavioural control) into multi belief dimension. The benefit of decomposing the belief structures in the TPB was to provide more understanding of the set of beliefs which in turn provides fuller explanation for behavioral intention and IT usage. Thus, the DTPB postulate that the attitudinal beliefs which are ease of use, usefulness, and compatibility indirectly influence behavioural intention via attitude in terms of IT usage. Also, the normative beliefs which are reference groups (such as, peers and superiors) indirectly affect behavioural intention via subjective norms in terms of IT usage. Additionally, the control beliefs which are self-efficacy, resource

facilitating conditions, and technology facilitating conditions indirectly affect behavioural intention via perceived behavioral control in terms of IT usage.

Table 2-2 shows the decomposed constructs (attitude, subjective norm, and perceived behavioural), the relevant belief dimensions, and the impact of relevant belief dimensions on the behavior with respect to the usage of IT.

Table 2-2: Illustration of the decomposing of three sets of belief constructs (Attitude, Subjective norm, and Perceived behavioral control) into a multi-dimensional belief construct.

The decomposed construct	The relevant belief dimensions	The impact of relevant belief dimensions on the behavior with respect to the usage of IT
Attitude toward behavior: Refer to an individual's positive or negative perception about performing a specific behaviour (Taylor & Todd, 1995; Fishbein & Ajzen, 1975; Ajzen & Madden, 1986).	**Attitudinal beliefs**. The attitude construct provides three dimensions for attitudinal beliefs: 1. **Perceived usefulness**: refers to the degree to which a person believes that using a particular technology would enhance his or her job performance (Davis, 1989; Davis, Bagozzi & Warshaw, 1989; Taylor & Todd, 1995). 2. **Ease of use**: refers to the degree to which a person believes that using a particular technology would be free of effort (Davis, 1989; Davis et al., 1989). 3. **Compatibility**: Rogers (1983) defined compatibility as the degree to which the particular technology is perceived as consistent with the existing values, past experiences, and needs of the potential adopter.	As the ease of use, usefulness, and compatibility increase the attitude toward IT usage should become more positive (Taylor & Todd, 1995).
Subjective norm: "refers to the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188).	**Normative beliefs**. The subjective norm construct provides three dimensions for normative belief: 1. **Peers** (other post-secondary instructors). 2. **Superiors**. 3. **Students**. In this study, peer influence, superior influence, and student influence are antecedents to subjective norm. Thus, an instructor's behaviour to use particular technology is affected by perceived variables such as peer influence, superior influence, and student influence.	In case of different opinions (i.e. positive and negative opinion) among the referent groups regard to adopt/ use IT, "a monolithic normative structure may show no influence on subjective norm or intention because the effects of the referent groups may cancel each other out." (Taylor & Todd, 1995, P. 152).
Perceived behavioral control: Refers to "the person's belief as to how easy or difficult performance of the behavior is likely to be." (Ajzen & Madden, 1986, p.457)	**Control beliefs**. 1. **Self-efficacy**: refer to an person's self-confidence in his/her ability to perform a behavior (Bandura, 1982). 2. **Facilitating conditions** (resource and technology): "With respect to IT usage, the	Self-efficacy has a positive effect on behavioral intention and behaviour. The higher levels of self-efficacy are, the higher levels of behavioral intention and IT usage would be (Compeau & Higgins 1995, Taylor & Todd, 1995). As resource factors and technology compatibility decrease intention and usage

		facilitating conditions construct provides two dimensions for control beliefs: one relating to resource factors such as time and money and the other relating to technology compatibility issues that may constrain usage" (Taylor & Todd, 1995, P. 153).	of IT will decrease (Taylor & Todd, 1995).

2.2.2 Review of the Literature on the DTPB

This study used the DTPB (Taylor & Todd, 1995) as the theory framework for the research for two reasons: first, as this study replicated Ajjan and Hartshorne (2008) study, it would be better to follow same theory that they utilized in their research, which is DTPB. This would help to make a good comparison between the results of the current study and the results of Ajjan and Hartshorne (2008) study. Second, DTPB provided a more elaborate explanation and increased predictive power of the users' intention toward using technology than either theory alone (Taylor & Todd, 1995). So, it was believed that DTPB helps in providing a fuller understanding of the determinants of adopting and using Web 2.0 technologies by post-secondary instructors to support their classroom instructions. The following review of DTPB literature provides information about the importance of the DTPB in explaining, predicting, and/or understanding users' usage of several information technology.

The DTPB is proposed by Taylor & Todd (1995) through their research which aimed to explore factors that effect students' usage of a computer resource center. Taylor and Todd (1995) compared DTPB with other two theoretical models: Technology Acceptance Model (TAM) and Theory of Planed Behaviour (TPB) in order to examine which model best help to understand intention to use information technology (IT). They conclude that "while the Technology Acceptance Model is useful in predicting IT usage behavior, the decomposed TPB provides a more complete understanding of behavior and

behavioral intention by accounting for the effects of normative and control beliefs" (Taylor & Todd, 1995, p. 172).

Lin (2007) conducted a study to understand the determinants of consumer intention to shop online. Lin (2007) compared three theoretical models: DTPB, TPB, and TAM to each other to examine which model best help to predict consumer intentions to shop online. The results revealed that "the decomposed TPB model provides a fuller understanding of the determinants of behavioral intentions" (Lin, 2007, p.440). "Hence, the results generally indicated that the decomposed TPB model provides an improved method of predicting consumer intentions to shop online" (Lin, 2007, p.440).

Hung and Chang (2005) compared the effectiveness of three models which were Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and the decomposed TPB model in understanding wireless application protocol (WAP) services acceptance. The results confirmed that "the decomposed TPB model provides more easily understood and managerially relevant information to guide WAP services design efforts" (p. 367). Thereby, the researchers concluded that "the decomposed TPB model can provide leverage points to guide WAP services design efforts" (Hung & Chang, 2005, p. 367)

In Shih and Fang (2004), the DTPB was compared with other two theoretical models: the theory of reasoned action (TRA) and TPB in order to understand and predict customers' intention to adopt internet banking. The results revealed that "the decomposed TPB model has better explanatory power for behavioral intention, attitude and subjective norm than the TRA and pure TPB models" (Shih & Fang, 2004, p.220).

Ajjan and Hartshorne (2008) investigated faculty awareness of the benefits of Web 2.0 technologies to be used in classroom learning. They also investigated the factors that influence faculty members' adoption of Web 2.0 technologies using DTPB as theoretical foundation. "The study results demonstrate[d] the usefulness of the decomposed theory of planned behavior in explaining the determinant and use of Web 2.0 applications by faculty to supplement in-class learning." (p. 79).

To, Liao, Chiang, Shih, and Chang (2008) conducted research to explore the factors influencing the adoption of instant messaging by workers in organizations. The researchers select DTPB as theoretical basis for their research as DTPB represents clear and easily understood sets of beliefs. They acknowledged the importance of DTPB model with respect to its consideration of "the influence of social norm and internal and external constraints, which is lacking in other models for the study of technology acceptance" (p. 150).

Smarkola (2007) conducted a study for two purposes. The primary purpose was to investigate beliefs that contribute to student teachers' and experienced teachers' intentions to use computer applications in their school lessons. The secondary purpose was to examine the efficacy of using the decomposed theory of planned behavior for predicting intentions to use computers. Smarkola concluded that "Compared to the TAM […] the DTPB has the capability to provide educators and researchers with a more comprehensive view into belief systems that can contribute classroom computer usage issues" (p. 1210).

As seen from the above literature review, the DTPB is effective in terms of providing more complete explaining of determinants of the information technology usage

than other theoretical model (such as TAM (Davis, 1989), TPB (Ajzen, 1991), and TRA (Fishbein & Ajzen, 1975)).

2.2.3 Research Model and the Hypotheses

As mentioned in the previous section, this study utilized DTPB (Taylor & Todd, 1995) as a theoretical framework. The DTPB model helped in predicting the best factors that influence post-secondary instructors' decisions with respect to adopting Web 2.0 technologies to support teaching and learning in the classroom. The research model is presented in Figure 2-1 followed by the research hypotheses which illustrate the research model.
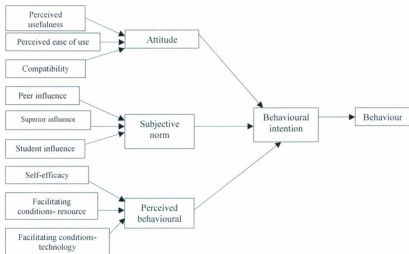
Figure 2-1: Research model (post-secondary instructors' adoption of Web 2.0 technologies in the classroom- based on DTPB.)

The relationships among the studied constructs in figure 2-1 are represented in the following Hypotheses.

Attitude: in this study, attitude toward using Web 2.0 technologies is defined as post-secondary instructors' positive or negative perceptions to use Web 2.0 technologies in their classroom. Previous studies have found a significant direct relationship between attitudes and intention to perform a specific behavior (Taylor, & Todd, 1995; Lin, 2007; To et al., 2008; Ajjan & Hartshorne, 2008; Shih & Fang, 2004; Hung & Chang, 2005). Therefore, this study hypothesised that instructors with a positive attitude toward using Web 2.0 technologies will have a favorable intention to use Web 2.0 technologies in their classrooms.

H1: Attitude of users towards using Web 2.0 technologies has a positive effect on behavioral intentions.

Subjective norms: In this study, subjective norms refer to the post-secondary instructors' perceptions that referent groups who are important to them think they should or should not use Web 2.0 technologies in their classroom. Number of researchers had shown that subjective norm had positively impacted the intentions to perform a particular behaviour (Taylor & Todd, 1995; Hung & Chang, 2005; To et al., 2008). Therefore, it was hypothesized that the higher levels of subjective norm is, the higher levels of intention will be with regards to using Web 2.0 technologies in the classrooms by post-secondary instructors.

H2: Subjective norms of users with respect to usage of Web 2.0 technologies have a positive effect on behavioral intentions.

Perceived behavioral control: in this study, perceived behavioral control refer to whether post-secondary instructors feel using Web 2.0 technologies to support their classroom instruction is within their control. Previous studies have shown that perceived control behavior is a significant antecedent of intention to perform behavior which is related to technology usage (Taylor & Todd, 1995; Lin, 2007; To et al., 2008; Shih & Fang, 2004; Ajjan & Hartshorne, 2008). Therefore, this study hypothesized that if post-secondary instructors feel that using web 2.0 technologies within their control they will have a high intention to use Web 2.0 technologies in their classrooms to support classroom instructions.

H3: Perceived behavioral control of users with respect to usage of Web 2.0 technologies has a positive effect on behavioral intentions.

Behavioral intention: behavioral intention in this study is defined as the strength of post-secondary instructor's willingness to use Web 2.0 technologies in their classroom. Past studies have provided evidence that behavioral intention is significant determinant of behaviour with respect to usage of technology (Taylor & Todd, 1995; Lin, 2007; Hung & Chang, 2005; Ajjan & Hartshorne, 2008; Shih & Fang, 2004). In the same context, Fishbein and Ajzen (1975) stated that peoples' behavior (e.g., toward system usage) was best predicted by their intentions. Thus, "As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance" (Ajzan, 1991, p.181). In light of this, this study hypothesized that instructors with a stronger intention to use Web 2.0 technologies are more likely to perform this action.

H4: Behavioral intention to use Web 2.0 technologies has a positive effect on behavior.

Perceived usefulness: Shih and Fang (2004) in their study referred to perceived usefulness as relative advantage. According to Taylor and Todd (1995), relative advantage is consistent with perceived usefulness in Technology Acceptance Model (TAM) (Davis, 1989). In this study, perceived usefulness is defined as the degree to which a post secondary instructor believes that using Web 2.0 technologies in the classroom would enhance his or her job performance. Past studies have empirically supported the relationship between perceived usefulness and attitude (Taylor & Todd, 1995; Lin, 2007; Hung & Chang, 2005; Ajjan & Hartshorne, 2008; Shih & Fang, 2004). So, it is hypothesized that there is a positive relationship between post-secondary instructors' attitude towards using Web 2.0 technologies in the classroom and their perceptions about its usefulness.

H5a: Perceived usefulness has a positive effect on attitudes towards usage of Web 2.0 technologies.

Perceived ease of use: Shih and Fang (2004), in their study referred to perceived ease of use as complexity. According to Taylor and Todd (1995), complexity is consistent with perceived ease of use in Technology Acceptance Model (TAM) (Davis, 1989). In this study, perceived ease of use refers to the degree to which the post-secondary instructor believes that using Web 2.0 technologies in the classroom would be free of effort. Previous studies have shown that attitude toward behaviour is affected by perceived ease of use (Lin, 2007; To et al., 2008; Ajjan & Hartshorne, 2008; Hung & Chang, 2005; Shih & Fang, 2004). Therefore, this study hypothesizes that instructors who exhibit a higher level of perceived ease of use are more likely to have positive attitude toward using Web 2.0 technologies in the classroom.

H5b: Perceived ease of use has a positive effect on attitudes towards usage of Web 2.0 technologies.

Compatibility: In this study, compatibility was defined as the degree to which post-secondary instructors perceive that using Web 2.0 technologies is consistent with their needs during their teaching in the classrooms. Previous studies have shown that increasing the compatibility of technology usage would help to form positive attitude towards using this technology (Lin, 2007; To et al., 2008; Shih & Fang, 2004; Ajjan & Hartshorne, 2008). Therefore, it was hypothesized that there was a positive relationship between post-secondary instructors' attitude towards using Web 2.0 technologies in the classroom and their perceptions about the compatibility of Web 2.0 technologies usage.

H5c: Perceived compatibility has a positive effect on attitudes towards usage of Web 2.0 technologies.

Referent groups: Taylor and Todd (1995) suggested a decomposition of the normative belief structure into three referent groups, peers, superiors and subordinates. They claim that divergence of opinion among the referent groups will offer different views on the use of IT. Following Ajjan and Hartshorne (2008), it is assumed that the post-secondary instructors' intention to use Web 2.0 technologies could be influenced by these referent groups: superiors, peers (i.e. other post-secondary instructors), and students. Therefore, it was hypothesized that referents group positively affect intention to use Web 2.0 technologies via subjective norm.

H6a: Superior influence to use Web 2.0 technologies has a positive effect on subject norm.

H6b: Peer influence to use Web 2.0 technologies has a positive effect on subject norm.

H6c: Student influence to use Web 2.0 technologies has a positive effect on subject norm.

Self-efficacy: in this study, self-efficacy refers to a post-secondary instructor's self-confidence in his/her ability to use Web 2.0 technologies in the classroom. Past studies have provided evidence that self-efficacy is a significant antecedent of perceived behavioural control with respect to technology usage (Lin, 2007; Taylor, & Todd, 1995; To et al., 2008; Shih & Fang, 2004; Ajjan & Hartshorne, 2008; Hung & Chang, 2005). In this context, the higher levels of self-efficacy are, the higher levels of behavioral intention and IT usage would be (Compeau & Higgins 1995; Taylor & Todd, 1995). Therefore, this study hypothesized that self-efficacy positively affects intention to use Web 2.0 technologies via perceived behavioral control. Thus,

H7a: Self-efficacy of using Web 2.0 technologies has a positive effect on perceived behavioral control.

Facilitating conditions: in this study, facilitating conditions reflects the availability of resources needed by post-secondary instructors to use Web 2.0 technologies in the classroom. These resources might include time, money and compatible technology. In fact, "the absence of facilitating resources represents barriers to usage and may inhibit the formation of intention and usage" (Taylor, & Todd, 1995, p. 153). Some researchers (such as To et al. (2008)) have reported that facilitating conditions is a significant antecedent of perceived behavioural control with respect to the

usage of technology. This study hypothesized that facilitating conditions positively

affects the intention to use Web 2.0 technologies via perceived behavioral control. Thus,

H7b: Facilitating resource conditions of using Web 2.0 technologies has a positive effect on perceived behavioral control.

H7c: Facilitating technology conditions of using Web 2.0 technologies has a positive effect on perceived behavioral control.

Chapter Three: Methodology of the Study

3.1   The Instrument

The survey instrument for the current study was used to gather post-secondary instructors' views regarding their awareness of the benefits of using Web 2.0 technologies in classroom instruction, and to investigate factors that influence instructors' decision to use Web 2.0 technologies in their classrooms. As this study replicated Ajjan and Hartshorne's (2008) research; a quantitative approach was followed and a similar survey instrument was used. Ajjan and Hartshorne (2008) based their research survey items on Baylor and Ritchie (2002); Davis (1989); Taylor and Todd (1995) studies. It is important to note that Ajjan and Hartshorne (2008) developed the survey instrument based on the decomposed theory of planned behavior as its guiding framework.

Because the survey instrument used for this current study was derived from Ajjan and Hartshorne's (2008) research, permission to use their survey was requested and acquired. As well Permission was granted by the survey's authors to edit any items in the survey where they were required (see appendix A).

The survey instrument was edited and placed into a web-based survey tool, surveymonkey.com (SurveyMonkey, 2008). Surveymonky.com (SurveyMonkey, 2008) a website that hosted internet survey development services. The web-based survey instrument was sent as a link to the study's survey participants in an introductory email message that also described the nature of study and request for their participation. Definition of what constitutes Web 2.0 technologies was repeatedly mentioned

throughout the survey instrument itself and in the introductory email. The decision to utilize this form of survey was predicated on the following observation:

"Advantages of online survey distribution include increased time efficiency, decreased data entry error, increased item response rate, and decreased cost" (Schmidt, Strachota & Conceicao, 2006, p. 1419).

Enacting procedures to test content validity for the survey instrument was viewed as not required because it had been previously by is original authors, Ajjan and Hartshorne (2008). After discussion with the thesis research advisor and one other the research expert in the Education Faculty at of Memorial University additional survey items were added into the survey instrument. This was done to better fit local conditions.

A statement of confidentiality was included insuring that all responses would kept confidential. At the beginning of each survey instrument, a statement was included to indicate that the survey instrument used in this research had been edited to better fit local conditions and placed into surveymonkey.com, and it had been modified from the work of Ajjan and Hartshorne (2008). As well, also, instructions were added to guide respondents as they navigated the survey instrument and provided responses for each of the instrument items in a way that best described their views (see Appendix H). The survey instrument items that were presented to participants included the following types:

- A matrix of choices questions; one answer allowed and multiple answers allowed.
- Multiple choices questions.

- Five-point Likert-type scale question items (strongly agree, agree, neutral, disagree, strongly disagree).

The survey instrument was composed of four sections. Section one was titled "General Information". This section included seven questions related to demographic data. These questions were about

1. The respondent's gender.

2. The respondent's age.

3. Type of post-secondary institution that the respondent works in.

4. The respondent's academic position/rank.

5. The number of years of experience the respondent has as full-time post-secondary instructor.

6. The number of years of experience the respondent has as part-time post-secondary instructor.

7. The respondent's current academic discipline(s)/teaching area.

Section two which was titled "Web 2.0 Technologies" contained three questions. The questions asked the respondents reflected to Web 2.0 technologies (blogs, wikis, social networking, and social bookmarking) seeking their views on comfort level in using them, their actual usage of Web 2.0 technologies in the classroom, and their attitudes towards Web 2.0 technologies. Section two provided questions which were directed toward answering research question #1, which was: Are post-secondary college educators and trainers aware of the benefits of using Web 2.0 technologies to be used by them in their classroom instruction?

Section three in the survey which was titled "Web 2.0 Technologies Adoption" included 35 five point Likert-type survey items (strongly agree to strongly disagree). These items were based on decomposed theory of planned behaviour (DTPB). These asked the respondents about their usage of Web 2.0 technologies in classrooms in terms of actual usage, behavioral intention, related attitude, ease of use, and perceived usefulness. Also sought were their views on imbedded subjective norms, perceived behavioral control, peer influence, superior influence, student influence, compatibility, facilitating conditions that included technology and resources, and self-efficacy. Section three was focused on collecting data to answer research question 2: What factors best predict post-secondary college educators and trainers decision to adopt Web 2.0 technologies to be used by them in their classroom instructions?

Section four, which was the last section in the survey, was titled "Web 2.0 Technologies Workshops". The section contained three questions. Question 1 asked the respondents if their colleges organize Web 2.0 tools workshops, training programs, or professional development sessions for its instructors to learn about using Web 2.0 tools in education.

Question two asked the respondents if they had received any training in using Web 2.0 tools in education during their post-secondary school employment.

Question three asked the respondents if they would like to attend any workshop, training program, or professional development about using Web 2.0 tools in education.

In fact, section four did not exist in Ajjan and Hartshorne's (2008) research survey. It was add to this research in order to lessen frustration for the group of participants who might not have been aware of Web 2.0 technologies. This section was

included to give that group of participants a view of how to improve their Web 2.0

technologies skills and emerging educational software.

3.2   *The Sample*

The target population used for this study were post-secondary instructors working

in various colleges in Newfoundland and Labrador. The initial intent was to send the

survey to all full-time and part-time instructors who were working in provincial public

(i.e. College of North Atlantic) and private colleges, those instructors who prepare

students for enter to services and occupations but not associated with university

education. Memorial University of Newfoundland (MUN) St. Johns' campus and Grenfell

were not considered part of the provincial college system; therefore, they were excluded

from the study.

To determine the sample size for this study, a research assistant telephoned each

provincial public and private college inquiring about the number of full-time and part-

time instructors employed in each college. The result from the phone calls showed that

there were approximately 656 instructors working in various campuses of the College of

North Atlantic (the public colleges) and approximately 436 in private colleges. Because

the survey needs to be sent via email to each instructor, there was also a need to collect

the instructors' addresses email. To this end, two letters were sent to each private and

public college administrator. These letters included endorsement letters from the

supervisor and the researcher. The first endorsement letter detailed the importance of the

study and requested the administrators to provide any information that could help with

conducting the research (see Appendix C). The other letter described the study and requested the instructors' email addresses (see Appendix D).

Using this method, 26 contacts were provided for 26 instructors from private colleges. College of North Atlantic (CONA) was able to provide a second method that proved extremely helpful in recruiting participants. CONA provided an electronic request via Institutional Research and Planning Office which allowed the researcher to request the emails of all CONA instructors in Newfoundland and Labrador. This list returned 796 names and email addresses. These included the 656 CONA instructors as well as other CONA employees (e.g., program developers, academic program developers, coordinating instructors, counsellors). Because the list did not indicate the position or rank of the contacts, the survey link was sent to all contacts. Respondents whose academic positions/rank were not in teaching, were excluded using survey item 1.d "please indicate your academic position/rank".

To adhere to confidentiality policy, all files received from College of the North Atlantic (CONA) required a password to be accessed. This password was acquired through a phone call from the Institutional Research and Planning office of the College of the North Atlantic. The password was locked to ensure safe keeping with no body access to it except the researcher. Also, the 25 contacts received form private colleges kept in locked file

In sum, the survey link was sent via email to 25 private college instructors and 796 public college employees.

3.3   Procedure

The steps that were followed in requesting the post-secondary instructors' emails' addresses prior to sending the survey link were mentioned earlier in this chapter. The survey link was included in an introductory email to be distributed to the participants (see Appendix B). The introductory email outlined the survey purpose and the goal of the study. The participants were informed that their participation in the study was completely voluntary and their responses would be kept completely anonymous and confidential. The introductory email directed the participants to click on the survey link to access the survey. The survey included instructions that helped the participants to navigate the survey and respond to the questions. The questions of the survey were presented in four sections. The participants were also advised that a two week time span had been designed as the time allotted to complete the survey.

3.4   Response Rates

The response rate from the initial email sent to public and private colleges instructors (n= 821) were 6%. Because following up contacts for electronic survey instruments increase the responses rate (Solomon, 2001), a second follow-up email was sent to all participants two weeks after sending the first email (see Appendix E). By sending the second follow-up email as a reminder to the participants the total responses rate was increased to 13%. For surveys sent by e-mail, Kittleson (1997) suggested that the responses rate will be doubled through sending multiple number of follow-ups memo. Therefore, with a total percentage of responses resulting from first and second email of

13% a third and final email was sent to all participants. This resulted in a final response rate of 22%.

3.5   *Limitation*

- Individuals who were not comfortable of using computers may have elected not to participate as this study used an electronic survey to collect the data. Also, individuals who were not aware about Web 2.0 technologies may have elected not to participate.

- This study did not use a random sampling methodology, which could affect the generalizability of the findings.

- This study focused on only four types of Web 2.0 technologies: blogs, wikis, social networking, and social bookmarking.

3.6   *Delimitation*

- The responses from private colleges were excluded from the study because they represented only 4% of the responses. Thus, the current study included only the College of the North Atlantic campuses within the province of Newfoundland and Labrador (NL). Subsequently, the results of this study may not be generalizable to private colleges or universities, or institutions outside NL.

- As this study gathered data from post-secondary college educators and trainers who instruct their students via face-to-face classes, the results may

not be generalizable to other teaching environments (i.e. distance learning classes).

- The response rate (22%) for this study is low compared to the average response rate of 37% (Sheehan, 2001). This may affect the generalizability of the results on the population as a whole.

Chapter Four: Results of the Study

4.1 Functions Used for Data Analysis

Results from this research survey were analysed using SPSS software (SPSS Inc., Chicago IL, 2011). A combination of descriptive analyses and advanced statistical analyses were used. The descriptive analyses included means, standard deviation, skewness, and minimum and maximum. Frequencies were also applied on all Likert - type items (see Appendix G). The advanced statistical analyses included regression analysis and reliability analysis. Regression analysis was used to create the path analysis in order to test the research hypotheses. Reliability analysis using Cronbach's Alpha was used to determine the internal consistency of all scale items.

4.2   The Sample

One hundred and seventy five surveys were completed by post-secondary faculty member who were working in private and public colleges (i.e. College of the North Atlantic) in Newfoundland and Labrador (NL). The responses from private colleges (n= 6) were excluded because they represented a very low percentage of respondents (3%). Eight responses were excluded from the public college responses because they were not in teaching positions. One respondent with an academic position/ rank of Distributed Learning instructor was also excluded because this study focused on post- secondary instructors who teach face-to-face in classrooms. This yielded a total of 160 respondents who work face-to-face in teaching in public colleges, representing 20% of the responses rate.

4.3   Reliability of the Instrument

Cronbach's alpha was used to assess the internal reliability of the instrument. "The Cronbach Alpha is generally the most appropriate type of reliability for survey research and other questionnaires in which there is a range of possible answers for each item" (McMillan & Shumacher, 1984, p. 129). The resulting Cronbach coefficient that would indicate internal reliability for the current study ranged from 0.61 to 0.97 (see Table 4-1).

Table 4-1: Cronbach's alpha value of each construct

Construct	Item		α value
Actual usage/behavior			.894
AU1	I believe that I could communicate to others the consequences of using Web 2.0 in the classroom.		
AU2	I would have no difficulty explaining why Web 2.0 technologies may or may not be beneficial		
Behavioral intention			.920
INT1	I plan to use Web 2.0 technologies in my classroom		
INT2	I intend to use Web 2.0 technologies within the next semester		
INT3	I will add Web 2.0 technologies to my class next semester		
Attitude			.891
ATT1	Web 2.0 is useful in my teaching		
ATT2	The advantage of using Web 2.0 outweighs the disadvantages of not using it		
ATT3	Using Web 2.0 is a good idea		
Ease of use			.885
EU1	I feel that using Web 2.0 will be easy		
EU2	I feel that using Web 2.0 will be easy to incorporate in my classroom environment		
Perceived usefulness			.931
PU1	I feel that using Web 2.0 will help my students learn more about the subject		
PU2	I feel that using Web 2.0 will improve students' satisfaction with the course		
PU3	I feel that using Web 2.0 will improve students' grades		
PU4	I feel that using Web 2.0 will improve students' evaluation		
PU5	To help my students better learn the material, I will incorporate Web 2.0 technologies in the classroom		
Subjective norms			.853
SN1	My peers are using Web 2.0 technologies in their classroom		
SN2	My superior confirms my ability and knowledge to use Web 2.0 technologies in the classroom		
SN3	My peers think I will benefit from using Web 2.0 technologies in my classroom		
SN4	My superior thinks it is important I use Web 2.0 technologies in my classroom		
SN5	My students thinks it is important I use Web 2.0 technologies in my classroom		
Perceived behavioral control			.607
PBC1	Using the Web 2.0 technologies is entirely within my control		
PBC2	I have the knowledge and ability to use Web 2.0		
Peer influence			.956
PI1	Peers who influence my behavior would think that I should use Web 2.0 technologies in the classroom		
PI2	Peers who are important to me would think that I should use Web 2.0 technologies in the classroom		
Superior influence			.973
SupI1	My superior, who influences my behavior would think that I should use Web 2.0 technologies in the classroom		
SupI2	My superior whom I report to would think that I should use Web 2.0 technologies in the classroom		
Student influence			.963
SI1	Students who influence my behavior think that I should use Web 2.0 technologies in the classroom		
SI2	Students who are important to me think that I should use Web 2.0 technologies in the classroom		
Compatibility			.956
Comp1	Using Web 2.0 technologies are compatible with the way I teach		
Comp2	Using Web 2.0 technologies fit well with the way I teach		
Facilitating conditions-technology			
FC1	The Web 2.0 technologies are compatible with the computer I already use in the classroom		
Facilitating conditions-resources			
FC2	I can use Web 2.0 technologies using any computer connected to the Internet		

Self-efficacy 0.95			.952
SE1		I would feel comfortable using Web 2.0 technologies	
SE2		I could easily use Web 2.0 technologies on my own	
SE3		I know enough to use Web 2.0 technologies	

4.4   Information on Demographics

One hundred and sixty respondents participated in this study. All were post-secondary faculty members in NL public colleges, and all were working in the College of the North Atlantic college system. The survey data included the respondents' gender, age, type of post-secondary institution they worked in, academic position, number of years and nature of their teaching (full-time or part-time), and instructional fields. The sample profile of the respondents is presented in Appendix F.

Slightly more female than male participants completed the survey (76 males, 83 females). The majority of respondents were between the ages of 40 and 59 (71.9%). The respondents had an average of 10 years of full-time teaching experience with a range of 0 to 38 years and standard deviation of 8.14 years. Also, they had an average of 4.5 years of part-time teaching experience with a range of 0 to 35 years and standard deviation of 6 years. Most of the respondents' rank/ position were instructors (n= 149; 93.1%), other respondents' rank/ position were educators (n= 6; 3.8%) and instructional assistants (n= 5; 3.1%). Most of the respondents were working in the departments of general academic such as Adult Basic Education (ABE), Math, Science, and Communications (25%).

4.5   Web 2.0 Technologies Awareness

Section 2 of the survey asked the respondents three questions.

In the first question, respondents were asked to indicate their comfort level with using Web 2.0 technologies. Table 4-2 below illustrates the percentages of respondents' comfort level of using the following Web 2.0 technologies: blogs, wikis, social networking, and social bookmarking.

Table 4-2: Respondents' comfort level of using Web 2.0 technologies

	Proficient	Competent	Novice	Never use
Blogs	10.6%	17.2%	21.2%	51.0%
Wikis	13.8%	30.9%	30.9%	24.3%
Social networking	21.2%	32.5%	19.2%	27.2%
Social bookmarking	4.0%	8.6%	14.6%	72.8%

In terms of respondents' comfort level in using blogs, a little over half (51%) said that they never used blogs, 21.2% indicated that they were novice,17.2% replied that they were competent, and only 10.6% replied that they were proficient in using blogs.

Respondents were generally stated a higher comfort level with respect to wikis. Only a quarter (24.3%) said they never used wikis, 30.9% stated that they were novice, another 30.9% stated that they were competent, and 13.8% replied that they were proficient.

With respect to social networking applications, 27.2% replied that they never used it, 19.2% said they were novices, 32.5% said they were competent, and 21.2% responded that they were proficient.

Respondents were the least comfortable with social bookmarking, with 72.8% of respondents indicating they never used bookmarking applications. 14.6% of respondents

replied that they were novice, 8.6% replied that they were competent, while only 4% replied that they were proficient in using social bookmarking.

Question 2, in section 2 of the survey, asked the respondents about their degree of Web 2.0 applications usage to supplement in-class lectures. Table 4-3 illustrates the percentages of respondents' usage of the following Web 2.0 technologies: blogs, wikis, social networking, and social bookmarking.

Table 4-3: Respondents' usage of Web 2.0 technologies

	Frequently use	Use occasionally	Don't use but plan to use	Don't use and don't plan to use
Blogs	2.7 %	14.3%	26.5%	56.5%
Wikis	6.3%	37.5%	13.9%	42.4%
Social networking	6.2%	16.4%	17.8%	59.6%
Social bookmarking	0.0%	7.8%	14.2%	78.0%

In terms of respondents' usage of blogs, the majority of the respondents, (56.5%), indicted that they did not use blogs and did not plan to use them, 26.5% indicated they did not use blogs but plan to use them, 14.3% used blogs occasionally, and only 2.7% used blogs frequently.

In terms of respondents' usage of wikis, the majority of the respondents, (42.4%), indicted that they did not use wikis and did not plan to use them, 37.5% of respondents replied that they use wikis occasionally, 13.9% of respondents indicated they did not use wikis but planned to use them at a later time, and only 6.3% replied that they used wikis frequently.

In terms of respondents' usage of social networking, the majority of the respondents, (59.6%), indicted that they did not use social networking and did not plan to

use them, 17.8% of respondents indicated that they did not use social networking but plan to use them at a later time, 16.4% of respondents use social networking occasionally, and only 6.2% use social networking frequently.

Finally, In terms of respondents' usage of social bookmarking, the majority of the respondents, (78%), indicted that they did not use social bookmarking and did not plan to use them, 14.2%, indicated that they did not use social bookmarking but plan to use them, 7.8% of respondents use social bookmarking occasionally, and no respondent indicated that he/she use social bookmark frequently.

The third question in section two of the survey, asked the respondents about their opinion of using Web 2.0 technologies in their classroom learning (see table 4-4).

Table 4-4: Respondents opinion of using Web 2.0 technologies in classroom

	Improve students learning	Increase student – faculty interaction	Increase student – student interaction	Improve student satisfaction with course	Improve students writing	Easy to integrate
Blogs	28.1%	20%	29.4%	16.3%	17.5%	21.9%
Wikis	40.6%	3.8%	6.9%	11.3%	8.1%	17.5%
Social networking	11.9%	19.4%	41.9%	16.3%	3.8%	15.6%
Social bookmarking	18.8%	3.1%	13.8%	6.3%	2.5%	8.8%

With respect to Web 2.0 technologies that would improve student learning, wikis were thought to have the most potential, with 40.6%. The next to this was blogs with 28.1%, then social bookmarking with 18.8%, and social networking with only 11.9%.

With respect to Web 2.0 technologies that improve students' interaction with faculty, blogs were thought to have the most potential, with 20%. The next to this was

social networking with 19.4%, then wikis with 3.8%, and social bookmarking with only 3.1%

With respect to Web 2.0 technologies that improve students' interaction with other students, social networking was thought to have the most potential, with 41.9%. The next to this was blogs with 29.4%, then social bookmarking with 13.8%, and wikis with only 6.9%.

With respect to Web 2.0 technologies that improve students writing, blogs were thought to have the most potential, with 17.5%. The next to this was wikis with 8.1%, then social networking with 3.8%, and social bookmarking with only 2.5%.

With respect to Web 2.0 technologies that improve students' satisfaction with the course, blogs and social networking were thought to have the most potential, with 16.3% for each. The next to this was wikis with 11.3%, and social bookmarking with only 6.3%.

With respect to Web 2.0 technologies that ease to integrate into courses, blogs were thought to have the most potential, with 21.9%. The next of this was wikis with 17.5%, then social networking with 15.6%, and social bookmarking with only 8.8%.

4.6   *Web 2.0 Technologies Adoption*

Section 3 of the survey consisted of a series of items using a five-point Likert-type scale (strongly agree to strongly disagree). The statistical analyses of this section were used to examine factors that influenced post-secondary instructors' intentions to use Web 2.0 technologies in their classrooms. Therefore, the research hypotheses of this study were tested using path analysis similar to that used by Ajjan and Hartshorne (2008).

All hypotheses were supported except for hypotheses #6b, #7b and #7c. The DTPB model explained .439 of the variance in behaviour, .698 of the variance in behavioral intention, .760 of the variance in attitude, .682 of the variance in subjective norm, and .398 of the variance in perceived behavioral control. All of the structural relationships among the studied constructs are presented in Figure 4-1. Figure 4-1 also displays the path coefficients and their significance for studied construct as well as R^2 for each dependent construct. Table 4-5 summarizes the significance levels of the path coefficients (t- scores) as well as the variance explained (R^2 value) for each dependent construct.

Table 4-5: The significance levels of the path coefficients (t- scores) and the variance explained (R^2 value)

Equation	R^2 (adjusted R^2)	Beta (t-scores)
Behavior (B)= I	.439 (.434)	
I		.663 (9.649)
Behavioral intent (I)= A+SN+PBC	.698 (.690)	
A		.612 (7.691)
SN		.141 (1.891)
PBC		.166 (2.191)
Attitude (A)= PU+PEOU+C	.760 (.753)	
PU		.501 (5.335)
PEOU		.151 (2.217)
C		.282 (3.052)
Subjective norm (SN)= SI+PI+SUPI	.682 (.674)	
SI		.219 (2.555)
PI		.189 (1.796)
SUPI		.477 (4.224)
Perceived behavioral control (PBC) = SE+FC-R +FC-T	.398 (.381)	
SE		.604 (6.054)
FC-R		.005 (0.047)
FC-T		.039 (0.384)
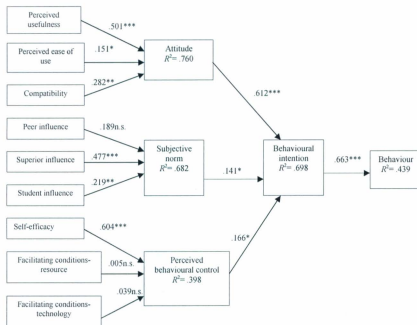
*** = significant at .001
** = significant at .01
* = significant at .05
n. s. = not significant

Figure 4-1: Path analysis results of factors that influence post-secondary adoption of Web 2.0 technologies in the classroom

The data presented in Figure 4-1 explain the findings of the research hypotheses

as follow:

Behavioral intention: research hypothesis # 1 stated that attitude of users towards

using Web 2.0 technologies has a positive effect on behavioral intentions. Information

from the path analysis provided evidence that the attitude of users towards using Web 2.0

technologies had a significant effect (β= .612, t= 7.691) on behavioral intention. Research hypothesis # 2 stated that a subjective norms of users with respect to usage of Web 2.0 technologies had a positive effect on behavioral intentions. The path analysis showed that the factor subjective norms had a significant effect (β= .141, t= 1.891) on behavioral intention.

Research hypothesis # 3 stated that perceived behavioral control of users with respect to usage of Web 2.0 technologies has a positive effect on behavioral intentions. This was supported by the path analysis which showed a significant effect (β= .166, t= 2.191) for perceived behavioral control on behavioral intention. Thus, the compiled data supports hypotheses #1, #2 and #3.

Behavior: research hypothesis #4 stated that behavioral intention to use Web 2.0 technologies has a positive effect on behavior. This is also supported by the path analysis which indicated that behavioral intention had a very significant effect (β= .663, t= 9.649) on behavior.

Attitude: research hypothesis #5a stated that perceived usefulness has a positive effect on attitudes towards usage of Web 2.0 technologies. The path analysis provided evidence that the factor perceived usefulness of Web 2.0 technologies had a very significant effect (β= .501, t= 5.335) on attitudes towards usage of Web 2.0 technologies. Research hypothesis #5b stated that perceived ease of use has a positive effect on attitudes towards usage of Web 2.0 technologies. Again, the path analysis supported this analysis, showing that perceived ease of use of Web 2.0 technologies had a significant effect (β= .151, t= 2.217) on attitudes towards usage of Web 2.0 technologies. Finally, Research hypothesis #5c stated that perceived compatibility has a positive effect on

attitudes towards usage of Web 2.0 technologies. The path analysis provided evidence that the factor perceived compatibility of Web 2.0 technologies had a significant effect (ß= .282, t= 3.052) on attitudes toward usage of Web 2.0 technologies. Thus, the three hypotheses 5a, 5b, and 5c are supported in the current study.

Subjective norm: research hypothesis #6a stated that superior influence to use Web 2.0 technologies has a positive effect on subject norm. The path analysis provided evidence that the factor superior influence had a significant effect (ß= .477, t= 4.224) on subject norms. Research hypothesis #6b stated that peer influence to use Web 2.0 technologies has a positive effect on subject norm. The path analysis provided evidence that the factor peer influence had no significant effect (ß= .189, t= 1.796) on subject norms. Finally, Research hypothesis #6c stated that student influence to use Web 2.0 technologies has a positive effect on subject norm. The path analysis provided evidence that the factor, students influence, had a significant effect (ß= .219, t= 2.555) on subject norm. Thus, this study supports hypotheses #6a and #6c and it became apparent the data that were collected failed to support hypothesis #6b.

Perceived behavioral control: research hypothesis #7a stated that self-efficacy of using Web 2.0 technologies has a positive effect on perceived behavioral control. The path analysis provided evidence that the factor self-efficacy had a significant effect (ß= .604, t= 6.054) on perceived behavioral control. Research hypothesis #7b stated that facilitating resource conditions of using Web 2.0 technologies has a positive effect on perceived behavioral control. The path analysis model provided evidence that the factor facilitating resource conditions had no significant effect (ß= .005, t= 0.047) on perceived behavioral control. Finally, Research hypothesis #7c facilitating technology conditions of

using Web 2.0 technologies has a positive effect on perceived behavioral control. The path analysis model provided evidence that the factor facilitating technology conditions had no significant effect ($\beta = .039$, $t = 0.384$) on perceived behavioral control. In sum, the research results of this study support hypothesis #7a and fail to support hypotheses #7b and #7c.

4.7 *Web 2.0 Technologies Workshop*

Section 4 of the survey asked the respondents three questions. In the first question, respondents were asked to indicate if their college organized workshops, training program, or professional development for its instructors to learn about using Web 2.0 application in education. The majority of the respondents (74.8%) replied that their college did not (see Table 4-6).

In the second question, respondents were asked whether they had received any training in using Web 2.0 application in education during their post-secondary school employment. The majority of the respondents (79.7%) replied that they had not.

The third question asked respondents if they would like to attend a workshop, training program, or professional development about using Web 2.0 application in education. 84.6% of the surveyed group replied that they would while 15.4% replied that they would not (see Table 4-6).

Table 4-6: Respondents responses about Web 2.0 technologies workshop

Item	Yes	No
If respondents' college organize workshops, training program, or professional development for its instructors to learn about using Web 2.0 application in education	25.2%	74.8%
If respondents have received any training in using Web 2.0 application in education during their post-secondary school employment	20.3%	79.7%
If respondents would like to attend any workshop, training program, or professional development about using Web 2.0 application in education	84.6%	15.4%

Chapter Five: Discussion

The purpose of this study was to assess post-secondary instructors' awareness of the benefits of Web 2.0 technologies and to explore factors that influence the post-secondary instructors' decisions to adopt these technologies to support their classroom instructions through the decomposed theory of planned behavior. For this purpose the following research questions were investigated: Research Question 1: Are post-secondary educators and trainers aware of the benefits of using Web 2.0 technologies to support their classroom instructions? Research Question 2: What factors best predict post-secondary educators and trainers' decision to adopt Web 2.0 technologies in order to support their classroom instructions?

5.1   Research Question 1

The first question investigated the post-secondary instructors and trainers' awareness of the benefits of using Web 2.0 technologies to support their classroom instructions. In order to address this research question, the research focused on examining post-secondary instructors and trainers' comfort level of using Web 2.0 technologies, the extent of their use of Web 2.0 technologies in classroom, and their perspective about the advantages of using Web 2.0 technologies.

The results provided evidence that many of the respondents know about the benefits of using Web 2.0 technologies in teaching and learning. For example, many of the respondents viewed blogs as the most useful of Web 2.0 technologies in terms of increasing student-faculty interaction, improving student writing, and easiness to

integrate. Most respondents agreed that wikis are able to improve student learning, and that social networks are able to increase student-student interaction. Also, many of the respondents agreed that blogs and social network were the most beneficial Web 2.0 technology with respect to improving students' satisfaction with a course. These results indicate that post-secondary instructors are aware of the value of using Web 2.0 technologies as instructional tools and believe that using different applications of Web 2.0 technologies was beneficial for their students.

Even though respondents saw value in using Web 2.0 technologies, the majority did not use them in their teaching and many did not plan to use blogs (56.5%), wikis (42.4%), social network (59.6), and/or social bookmark (78%)). Of the respondents who did use Web 2.0 technologies in their classroom instructions, only a few used them frequently. Only 2.7% frequently used blogs, 6.3% wikis, 6.2% social networks, and none used social bookmarks frequently. (See table (4-3), (p 47)). This indicates that the respondents were not completely ready to use Web 2.0 technologies in their classrooms. This could be caused due to the following two factors:

1. Most of the respondents did not feel comfortable using some of Web 2.0 technologies due to their skill level. For example, the results from this research showed that 51% of the respondents never used blogs and 72.8% of respondents never used social bookmarks. However, a number of the respondents were more comfortable with using wikis and social networks. For wikis, 30% of the respondents felt they were competent, while 24.3% of the respondents indicated that they have never used wikis. As for social networks, 32.5% felt that they were competent, while 27.2% of them showed that they have never used social

networks. Thus, the respondents were probably not ready to use Web 2.0 technologies partly because of lack of the necessary skills to use them. (See table (4-2), (p 46)).

2. The second explanation could be the lack of the training on using Web 2.0 technologies. The results of this research showed that most of the post-secondary instructors (79.7%) indicated that they had not received any training in using Web 2.0 technologies in teaching during their post-secondary school employment. This is consistent with the postulate that "the lack of teacher involvement in technology has been caused by the lack of suitable training and thus providing more opportunities to develop technological skills to teachers will lead to more technology integration." (Zhao & Cziko, 2001, p.7).

Interestingly, the post-secondary instructors favoured the idea of having training or practicing about using Web 2.0 technologies to support their teaching. As shown in table (4-6), p (55), the majority of respondents (84.6%) showed their willingness to attend any workshops, training programs, or professional development about using Web 2.0 application in education. As for the colleges' responsibility towards holding and organizing training programs for its instructors, the findings of this research reported that only 25.2% of the respondents indicated that their colleges organized workshops, training programs, or professional development for its instructors to learn about using Web 2.0 application in education.

It could be inferred that many of the post-secondary instructors acknowledged the pedagogical benefits of Web 2.0 technologies in the teaching and learning process, and were interested in receiving professional development training that could be focused on

using Web 2.0 technologies as instructional tools. Another finding from these results is that post-secondary instructors need help and support from their colleges to learn more and to enhance their skills about using Web 2.0 technologies.

5.2   Research Question 2

The second question investigated in this study was what best factors predict post-secondary educators and trainers' decision to adopt Web 2.0 technologies to support their classroom instructions. The results of the study were in accordance with the decomposed theory of planned behavior (DTPB), attitude, subjective norm, and perceived behavioral control have positive effects on behavioral intention to use Web 2.0 technologies. Attitude was seen as the most significant factor in determining the behavioral intention towards using Web 2.0 technologies compared to subjective norm and perceived behavioral control. The result of the positive impact of attitudes on behavioral intention was in line with prior research conducted by Taylor and Todd (1995), Lin (2007), To et al. (2008), Ajjan and Hartshorne (2008), Shih and Fang (2004);and Hung and Chang (2005). The result of the positive impact of subjective norm on behavioral intention is in line with prior research conducted by Taylor and Todd (1995), Hung and Chang (2005), and To et al. (2008). The result of the positive impact of perceived behavioral control on behavioral intention is in line with prior research conducted by Taylor and Todd (1995), Lin (2007), To et al. (2008), Shih and Fang (2004), and Ajjan and Hartshorne (2008). One conclusion coming from this is that intention to use Web 2.0 technologies could be enhanced by motivating favourable attitude, subjective norm, and perceived behavioural control.

The results for this research provided evidence that behavioral intention is a key determinant of actual behavior or usage of Web 2.0 technologies. The result of positive relationship between behavioral intention and actual behavior is consistent with prior research conducted by Taylor and Todd (1995), Lin (2007), Hung and Chang (2005), Ajjan and Hartshorne (2008), and Shih and Fang (2004). One conclusion coming from this is that post-secondary instructors with a stronger intention to use Web 2.0 technologies are more likely to use these technologies.

The results for this research provided further evidence that perceived usefulness, ease of use, and compatibility of Web 2.0 are key determinants of post-secondary instructors' attitude to use Web 2.0 technologies. Perceived usefulness was a much stronger predictor of user attitude toward using Web 2.0 technologies as compared to ease of use and compatibility, while compatibility was a stronger predictor of user attitude toward using Web 2.0 technologies than ease of use. The results of the positive relationship between perceived usefulness and attitude are consistent with prior studies conducted by Taylor and Todd (1995), Lin (2007), Hung and Chang (2005), Ajjan and Hartshorne (2008), and Shih and Fang (2004). While the results of the positive relationship between ease of use and attitude are consistent with prior studies conducted by Lin (2007), To et al. (2008), Ajjan and Hartshorne (2008), Hung and Chang (2005), and Shih and Fang (2004). With respect to the positive relationship between compatibility and attitude, the result is consistent with prior studies conducted by Taylor and Todd, (1995), Ajjan and Hartshorne, (2008), To et al. (2008), Lin (2007), Shih and Fang (2004). Therefore, one conclusion coming from this is that post-secondary instructors will form favorable attitude toward the usage of Web 2.0 technologies if they found using them to

be effortless and consistent and/or combatable with their needs during their teaching in the classrooms and if they would better their teaching performance. Thus, favorable attitudes towards using Web 2.0 technologies could be enhanced by improving usefulness, ease of use, and compatibility of Web 2.0 technologies, in line with Ajjan & Hartshorne (2008).

Additionally, the results from this study provided evidence that a superior influence and student influence are salient determinants of post-secondary instructors' subjective norms which in turn determine the intention of using Web 2.0 technologies. Superior influence was seen a much stronger predictor of user's subjective norms when compared to student influence. This result is consistent with Ajjan and Hartshorne (2008) study. Contrary to Taylor and Todd (1995), To et al. (2008), Hung and Chang (2005), and Ajjan and Hartshorne (2008), peer influence did not impact subjective norms. In other words, other post-secondary instructors do not have any effect on post-secondary instructors' behavioral intention toward the usage of Web 2.0 technologies. One plausible explanation for this result is that post-secondary instructors may have the same level of experience of using Web 2.0 technologies since the majority of respondents reported that they did not use and did not plan to use some of Web 2.0 technologies. So, an instructor's belief about using Web 2.0 technologies does not affect his/her peers. Thus, peers' opinions about using Web 2.0 technologies are not salient in determining the person's social influence. It is possible that post-secondary instructors gave higher importance to the opinions of their superiors because they believe that compliance with mandates from their superiors is a necessity that should be met (Davis et al., 1989). Also, post-secondary instructors might have given a higher importance to the opinions of their students because

they may believe that students of these days are more sophisticated with new technologies than prior generation, so they trust their students' beliefs about using Web 2.0 technologies.

This study found that only self-efficacy was positively associated with perceived behavioral control, which in turn determines the intention of using Web 2.0 technologies, in line with previous research (Ajjan and Hartshorne, 2008; Taylor and Todd, 1995; Lin, 2007; To et al., 2008; Shih and Fang, 2004; Hung and Chang, 2005). Compeau and Higgins (1995) showed that effective technology training can enhance user computer self-efficacy. Thus, one conclusion coming from this that providing training and practices for post-secondary instructors about the usage of Web 2.0 technologies in education would enhance the instructors' self-efficacy toward using Web 2.0 technologies.

On the other hand, the results from this study found that facilitating technology and resource conditions did not have an influence on the perception of behavioral control toward the intention and usage of Web 2.0 technologies. This result was consistent with Ajjan and Hartshorne (2008); Shih and Fang (2004); Hung and Chang (2005); and Lin (2007). This result indicates that post-secondary instructors' beliefs about the availability of facilitating conditions recourses and technology did not affect their ability to use Web 2.0 technologies.

5.3   Comparison

As this research replicated Ajjan and Hartshorne (2008) research, this section compares the results of this study with their research. While this study collected the sample data from post-secondary instructors who were working in public colleges in

Newfoundland and Labrador, Canada, Ajjan and Hartshorne research collected their data sample from instructional persons who were working in one large university in south eastern United States. A telling similarity exists between the results of the two samples, which indicates that this study supports Ajjan and Hartshorne's (2008) findings. The table below (Table 5-1) provides a comparison between the results of the two samples in terms of research questions.

Table 5-1: A comparison between the current study results and Ajjan and Hartshorne (2008) study in terms of research questions

Research Questions	Ajjan and Hartshorne (2008) study	This study
Research question 1: Are university faculty/ post-secondary instructors aware of the benefits of using Web 2.0 technologies to supplement/support the traditional classroom instructions?	The findings confirmed that most of faculty member acknowledged pedagogical benefits of Web 2.0 applications in higher education. However, the majority of respondents did not use and had no plans to use either blogs (62%),wikis (56%), social networks (74%), or social bookmarks (80%).	The findings confirmed that most of post-secondary instructors acknowledged pedagogical benefits of Web 2.0 technologies in education field. However, the majority of respondents did not use and had no plans to use either blogs (56.5%), wikis (42.4%), social networks (59.6), or social bookmarks (78%).
Research Question 2: What factors best predict faculty's / post-secondary instructors' decision to adopt Web 2.0 technologies to supplement/support the traditional classroom instructions?	Ajjan and Hartshorne (2008) found that the following factors predict the adoption of Web 2.0 applications by faculty for instructional purposes: behavioral intention, attitude, perceived behavioral control, ease of use, perceived usefulness, compatibility, and self- efficacy. while superiors, peers (other faculty), and students positively effected the faculty member subjective norms, it was found that subjective norm did not influence the behavioral intention which means subjective norms did not affect the faculty member in term of adopting Web 2.0 for instructional purpose. On the other hand, it was found that facilitating technology and resource conditions did not have an influence on the perception of behavioral control toward the intention and usage of Web 2.0 technologies.	This study found that the following factors predict the adoption of Web 2.0 applications by post-secondary instructors for instructional purposes: behavioral intention, attitude, subjective norm, perceived behavioral control, ease of use, perceived usefulness, compatibility, superiors' influence, students influence, and self- efficacy. This study also found that facilitating technology and resource conditions did not have an influence on the perception of behavioral control toward the intention and usage of Web 2.0 technologies. Also, peer influence did not have an influence on respondents subjective norms.

As there was a telling similarity existing between the results of two samples in terms of research questions, the statistical results between two studies were very close to

each other too. Table 5-2 illustrates this in terms of significance levels of the path

coefficients (t- scores) for each studied construct and the variance explained (R^2 value)

for each dependent construct.

Table 5-2: A comparison between the current study results and Ajjan and Hartshorne (2008) study in terms of significance levels of the path coefficients (t- scores) for each studied construct and the variance explained (R^2 value) for each dependent construct.

Equation	Ajjan and Hartshorne (2008)		This study	
	R^2 (adjusted R^2)	Beta (t-scores)	R^2 (adjusted R^2)	Beta (t-scores)
Behavior (B)= I	0.442 (0.437)		.439 (.434)	
I		0.666 (9.991)		.663 (9.649)
Behavioral intent (I)= A+SN+PBC	0.760 (0.754)		.698 (.690)	
A		0.830 (12.334)		.612 (7.691)
SN		−0.060 (−0.952)		.141 (1.891)
PBC		0.128 (2.218)		.166 (2.191)
Attitude (A)= PU+PEOU+C	0.806 (0.801)		.760 (.753)	
PU		0.615 (7.604)		.501 (5.335)
PEOU		0.144 (2.125)		.151 (2.217)
C		0.190 (2.546)		.282 (3.052)
Subjective norm (SN)= SI+PI+SUPI	0.641 (0.632)		.682 (.674)	
SI		0.356 (5.235)		.219 (2.555)
PI		0.205 (2.344)		.189 (1.796)
SUPI		0.396 (5.114)		.477 (4.224)
Perceived behavioral control (PBC) = SE+FC-R +FC-T	0.534 (0.522)		.398 (.381)	
SE		0.518 (6.125)		.604 (6.054)
FC-R		0.185 (1.321)		.005 (0.047)
FC-T		0.098 (0.706)		.039 (0.384)

Chapter Six: Conclusion and Recommendations

6.1   The Conclusion for this Study

This study had two main objectives:

1. to assess post-secondary instructors' awareness of the benefits of using Web 2.0 technologies in the classroom and

2. to identify the factors influencing post-secondary instructors' decision to adopt Web 2.0 technologies to support their classroom instructions using DTPB.

One hundred and sixty data samples were collected through web-based questionnaires from part-time and full-time post-secondary instructors who worked in public colleges (College of the North Atlantic campuses (CONA)) in Newfoundland and Labrador. Due to the delimitations of the study, the results of this study may not be generalized beyond CONA instructors. However, findings for this study provided evidence that many of the post-secondary instructors acknowledged the pedagogical benefits of Web 2.0 technologies in teaching and learning process. They believed that using Web 2.0 technologies would create effective learning environment for their students. For example, many post-secondary instructors believed that Web 2.0 technologies, such as blogs, would increase student-faculty interaction, improve student satisfaction with course work, and improve students' writing skills.

However, most of post-secondary instructors responding to this survey did not use Web 2.0 technologies and did not plan to use them in their teaching. Having collected evidence that most of the post-secondary instructors did not receive any training that

would have introduced them on how to integrate Web 2.0 technologies, it became apparent that the barrier to using Web 2.0 technologies by post-secondary instructors was partially due to a lack of training. Colleges' administrators have a roll in supporting post-secondary instructors by helping in organizing any training programs related to integrating Web 2.0 technologies into classroom. Although the majority of post-secondary instructors indicated that they would be interested in attending professional development, workshops, or other training program related to the usage of Web 2.0 technologies as instructional tools, these were not provided by their colleges. Therefore, one conclusion coming from this is that training in how to successfully integrate Web 2.0 technologies into classroom should be provided to post-secondary instructors.

In order to understand, in depth, the factors that influence post-secondary instructors' decision to adopt Web 2.0 technologies to support their classroom instructions, DTPB was applied. In fact, this research contributed to providing evidence that DTPB was effective in predicting the behavior of the subjects. The belief structures pertaining to attitudes (e.g., usefulness, ease of use, and compatibility), subjective norms (i.e., peer influence, superior influence, student influence), and perceived behavioral control (i.e., self-efficacy, technology and resource conditions) and behavioral intention allow the researcher to identify the factors that predict post-secondary instructors' decisions to adopt Web 2.0 technologies. So, the DTPB provided clear understanding of the determinants of behavioral intention which in turn predicts the adoption of Web 2.0 technologies by the post-secondary instructors.

Thus, a total of 13 decomposed factors were presented, of which 10 factors were found to have a significant effect on the usage of Web 2.0 technologies. Of these factors,

behavioral intention was the strongest predictor of post-secondary instructors' usage of Web 2.0 technologies. Attitude, subjective norm, and perceived behavioral control are the determining factors influencing behavioural intention, with attitude having the highest impact. Perceived usefulness, ease of use, and compatibility are the key determinants of post-secondary instructors' attitude toward using Web 2.0 technologies, of which, perceived usefulness is the most significant determining factor. Superior influence and students influence are salient determinants of post-secondary instructors' subjective norms with respect to the usage of Web 2.0 technologies. Compared to students influence, superior influence is viewed as the most significant factor in determining the post-secondary instructors' subjective norms regard to the usage of Web 2.0 technologies. Finally, self-efficacy is viewed as the only key determinant of perceived behavioral control with regard to the usage of Web 2.0 technologies by post-secondary instructors.

Thus, it could be concluded that to better enhance post-secondary instructors' use of Web 2.0 technologies in their classroom, factors that contribute to an increase of behavior intention toward using Web 2.0 technologies should be reviewed. To this end, the following factors should be considered

1. **Favorable attitude toward adopting Web 2.0 technologies should be enhanced**. A favourable attitude toward adopting Web 2.0 technologies can be motivated by viewing the usefulness, ease of use, and compatibility of the use of Web 2.0 technologies to the instructors. In this way the instructors will become familiar with Web 2.0 technologies. This could happen through holding multiple sessions for the instructors that will introduce Web 2.0 technologies, detail how Web 2.0 technologies can enhance teaching and learning, how Web 2.0

technologies are easily used, and how Web 2.0 technologies are consistent and compatible with their needs.

2. **Perceived behavioral control with respect to using Web 2.0 technologies should be supported**. This could happen by improving instructors' self-efficacy. While self-efficacy can be improved via training and practicing programs (Compeau & Higgins, 1995), instructors should be involved in Web 2.0 technologies professional development or Web 2.0 technologies workshops, so they feel more self-confident using Web 2.0 technologies. This self-confidence will further develop their self-efficacy

3. (a) **The superiors (such as administrators) should consider encouraging their staff (i.e. instructors) to use Web 2.0 technologies in their classrooms**. Superior influence has an indirect positive impact on instructors' behavior intention via subjective norm. Baylor and Ritchie (2002) concluded that "administrators who promote the use of technology, not only in words but also in action, lend credence to a technology culture" (p. 412).

(b) **Additionally, the instructors should always consider keeping in touch with their students and form good relationships with them** as student influence has an indirect positive impact on instructors' behavior intention with regard to using Web 2.0 technologies.

In sum, above three suggestions represent valuable guidance for post-secondary educational leaders (such as administrators, instructors, trainers, and instructional designer) who are interested in developing instructional strategies to rethink how to

promote Web 2.0 technologies to be used as instructional tools by post-secondary instructors.

6.2   Recommendations for Further Research

The following are directions for further research:

1. Other factors can be added to the decomposed theory of planned behavior model to further explain the factors predicting post-secondary instructor's decision to use Web 2.0 technologies to support their classroom instruction. For example, training or practices, professional developments, and administrators' support could be added as determinants of perceived behavioral control beliefs.

2. This study was based on data collected from post-secondary instructors working in NL public colleges to understand the factors affecting whether they decide to adopting Web 2.0 to support their classroom instructions. It would be useful to replicate this study and collect data form instructors who are involved with the many teaching faculties at Memorial University of Newfoundland, the only provincial university. The results of such a study could be compared with the results of the current study to see if there are any differences in factors predicting the intention and usage of Web 2.0 technologies.

3. One delimitation of this study was including only the responses from the College of the North Atlantic campuses (public college) within the province of Newfoundland and Labrador (NL) in which the results may not be generalized beyond public colleges' instructors in Newfoundland and Labrador. Therefore,

conducting a similar study to obtain data from private colleges and/or other studies of combined private/public colleges would be better to achieve generalizability.

4. Another limitation of this study was that the sample of the data was not random. This could affect the generalizability. For future research, it would be better to apply random sample in order to obtain a more representative sample which in turn would lead to the generalizability.

5. Since this study only considered post-secondary instructors who teach face-to-face, it is unclear whether the analytical results can be generalized to post-secondary instructors who teach online. Further research can apply DTPB to examine factors that affect distance education post-secondary instructors' decisions to use Web 2.0 technologies as instructional tools.

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Appendix A: Permission to Use Survey Instrument of Ajjan and

Hartshorne (2008)

I received this email from Dr. Richard Hartshorne

Date:	Thu, 1 Oct 2009 22:19:24 -0400
From:	"Hartshorne, Richard" <rhartsho@uncc.edu>
To:	raat86@mun.ca
Subject:	RE: Survey Instrument

Hello Ranyah,

Feel free to use the instrument...just cite us :)

I'm not sure about the item issue...I may have sent you a different version of the survey...or it may have been a numbering error....feel free to modify as necessary.

Cheers,

Richard

Richard Hartshorne, Ph.D. | Assistant Professor of Instructional Systems Technology
UNC Charlotte | Dept. of Educational Leadership
9201 University City Blvd. | Charlotte, NC 28223
Phone: 704-687-8711 | Fax: 704-687-3493
rhartsho@uncc.edu

-----Original Message-----
From: raat86@mun.ca [mailto:raat86@mun.ca]
Sent: Thu 10/1/2009 9:06 PM

To: Hartshorne, Richard
Subject: RE: Survey Instrument

Dear Dr. Richard

The points you raised in your paper (Ajjan and Hartshorne 2008) about the
reality of how instructors respond to newly introduced Information Technology
are of interest to me.

In my proposed research, I'm thinking about examining how instructors in post
secondary schools in our province (Newfoundland and Labrador) respond to such
newly introduced Information Technology. So, I'm wondering if you can give me
the permission to use your survey instrument in my research.

I also have an inquiry about point number 9, Section 3 of the instrument (Web
2.0 Technologies Adoption). You say, "Thinking of that Web 2.0 technology .
(based on question 11).", but I did not find question 11 in the survey
instrument. Any thoughts about that, please?

Thank you!
Ranyah Al-Taamneh
Master's student
Memorial University of Newfoundland, Canada
E-mail: raat86@mun.ca

Appendix B: Post-Secondary Instructor Introductory E-mail

Dear Faculty Member,

I am a graduate student in the Faculty of Education at Memorial University, working under the supervision of Dr. George Haché and conducting a thesis research to complete my master's degree requirements.

You may be aware that the fast-growing field of WEB 2.0 TECHNOLOGIES* are having a dramatic impact on education and learning, but there is little known on how this is being experienced by college instructors and trainers. I'm asking you to help filling this knowledge gap by completing a survey that is designed to assess post secondary colleges instructors' and trainers' views, knowledge, attitudes, and adoption REGARDING WEB 2.0 TECHNOLOGIES* TO BE USED TO ENHANCE CLASSROOM LEARNING. The results of the study will likely contribute to the base of knowledge in this field and may prove useful to developing new strategies for those who teach in post secondary educational systems.

(* WEB 2.0 TECHNOLOGIES refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies. (source: http://en.wikipedia.org/wiki/Web_2.0))*

The survey should take 15 minutes or less to complete. The survey is being administered via Surveymonky.com, a web survey service-provider. Surveymonky.com uses a secure website, offering a high degree of both **CONFIDENTIALITY** and **ANONYMITY**. When you complete the survey, it will be sent to survymonky.com where **ALL IDENTIFYING INFORMATION WILL BE REMOVED** before the data is sent to the researcher. Should you wish further information about syrveymonky.com, please visit their website at www.surveymonkey.com

Participation is completely voluntary and you are free to withdraw from the study at any time without penalty.

Surveys must be completed by May 31, 2010 at the latest.

CLICK HERE TO ACCESS THE SURVEY:

http://www.surveymonkey.com/s/GKDQ73T

NOTE: **if this link does not work**, you can access the survey by copying and pasting the link into the web address line.

If you have any questions or concerns, please do not hesitate to e-mail me at (raat86@mun.ca or rania_taamneh@yahoo.com) or my thesis supervisor, Dr. George Hache, at (ghache@mun.ca).

Thank you very much for your participation in this study. Your assistance is gratefully appreciated!

Sincerely,

Mrs. Ranyah Taamneh

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University 's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

Appendix C: Endorsement Letter from Supervisor to Post-Secondary

Administrators

My Fellow Post Secondary Colleagues

As a college instructor you may recognize that we in the Post Secondary Program of the Faculty of Education at Memorial University have interests in the disposition of those who teach students that are receiving instruction in post secondary programs situated in both private and public colleges of the Province of Newfoundland and Labrador. Our interest in teacher development has a long history in the Province and increasingly for post secondary instructors who reside in other Provinces and countries.

With an ongoing belief that we need to be mindful of evolving trends that are vital for the development of instructors, we periodically survey the field for a better view college instructors' opinion of new trends. In this age rapid advances in teaching technologies one area that we are seeking a more informed opinion from the field is that which revolves around Web 2.0 technologies.

Ranyah Taamneh, a candidate for the Masters of Education Degree, has meticulously put together a survey that will enable her to collect instructors' opinions on this topic and we are most interested in her study. I trust her work and can only see beneficial information will result at the completion of her study, and believe it will help us gain a more useful view of this topic.

I fully endorse Ranyah Taamneh's efforts and would be most appreciative of your participation and responses that are component of her research effort.

Sincerely,
Dr. G Hache'
Post Secondary
Memorial University of Newfoundland

Appendix D: Endorsement Letter from the Researcher to Post-

Secondary Administrators

Dear administrator,

As part of my degree requirements I am conducting research that aims to assess post secondary colleges instructors' and trainers' views related how Web 2.0 technologies can be used to enhance classroom learning. An investigation of factors that influence post secondary colleges instructors and trainers' adoption of Web 2.0 technologies are also a component of the research plan.

To complete my research study, there is a need to collect data from a representative group of post secondary college instructors and trainers within the Province of Newfoundland and Labrador. Gathering data will be via a questionnaire which will be emailed to the instructors. Those participants would be emailed with a letter that explain them the nature of the research, and a link to the research questionnaire. It is anticipated that the responses to the questionnaire will only take less than 15 minutes to complete.

As you are aware, all data collected will only be done so with strict adherence to university policy regarding confidentiality and complete anonymity.

I am writing you this message to provide me with the instructors and trainers' emails at your college. You can send me their emails via my email (**rania_taamneh@yahoo.com**) or mail them to me at the following address:
365 Hamilton Avenue
St. John's, NL
A1E 5C4

Because of his long attachment with the field, my supervisor, Dr. Hache, will remain available to discuss the merit of such research in the post secondary system in the Province of Newfoundland. He can be reached through a telephone call at 709 754- 6804 or email at ghache@mun.ca.

I also remain available to discuss this intended research with you at your convenience.

Respectfully,
R. Taamneh
Master's student
Memorial University of Newfoundland, Canada
E-mail: rania_taamneh@yahoo.com
        or

raat86@mun.ca

Appendix E: Follow-up Email

Dear faculty member,

Two weeks ago a survey was sent to you, asking your opinions about *WEB 2.0 TECHNOLOGIES** to be used in classroom learning.

If you have already completed the survey, thank you very much for your effort and you do not need to go over this message. If not, I appreciate it if you can voluntarily fill out the survey in the link below.

(*WEB 2.0 TECHNOLOGIES refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies. (source: http://en.wikipedia.org/wiki/Web_2.0))

I'm grateful for your help, as your response will help to investigate factors that influence post-secondary instructors' decisions, and intentions regarding Web 2.0 Technologies to be used to enhance classroom learning. Your cooperation in completing this survey is really vital and crucial to the success of this study.

Be sure that all information gathered in this study will remain strictly confidential and at no time will individuals or institutions be identified or connected with any particular information.

CLICK HERE TO ACCESS THE SURVEY:
http://www.surveymonkey.com/s/GKDQ73T

NOTE: **if this link does not work**, you can access the survey by copying and pasting the link into the web address line.

If you have any questions or concerns, please do not hesitate to e-mail me at (raat86@mun.ca or rania_taamneh@yahoo.com) or my thesis supervisor, Dr. George Hache, at (ghache@mun.ca).

Thank you for your time and valuable input into my study.

Sincerely,

Mrs. Ranyah Taamneh

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University 's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

Appendix F: Respondents' profile

	Value	Frequency	Percent
Gender			
	Male	76	47.5%
	Female	83	51.9%
	No answer	1	0.6%
Age			
	Under 30	4	2.5%
	31-39	35	21.9%
	40-49	59	36.9%
	50-59	56	35.0%
	Over 60	3	1.9%
	No answer	3	1.9%
Academic position/rank			
	Educator	6	3.8%
	Instructional assistant	5	3.1%
	instructor	149	93.1%
Number of years of teaching experience as full-time			
	Less than 1 years	3	01.9%
	1-5 years	69	43.1%
	6-10 years	29	18.1%
	11- 15 years	18	11.3%
	16 years and up	40	25.0%
	No answer	1	00.6%
Number of years of teaching experience as part-time			
	None	11	6.9%
	Less than 1 years	45	28.1%
	1-5 years	45	28.1%
	6-10 years	11	6.9%
	11- 15 years	0	0.0%
	16 years and up	4	2.5%
	No answer	44	27.5%
Academic department			
	General academics	53	25.1%
	Engineering	9	04.3%
	Industry	34	16.1%
	Tourism	5	02.4%
	Health	8	03.8%
	Applied art	9	04.3%
	Business	35	16.6%
	Information Technology	4	01.9%

Others	10	04.7%
No answer	44	20.9%

Appendix G: Descriptive Statistics

	N		Mean	Std. Deviation	Skewness	Std. Error of Skewness	Minimum	Maximum
	valid	missing						
Actual usage	123	37	5.6341	2.13967	.473	.218	2.00	10.00
behavioural intention	123	37	9.1707	3.05337	.073	.218	3.00	15.00
attitude	121	39	8.0909	2.56580	.111	.220	3.00	15.00
Ease of use	121	39	5.8595	1.77626	.062	.220	2.00	10.00
Perceived usefulness	117	43	13.9402	3.98768	.460	.224	5.00	25.00
Subjective norm	115	45	15.7652	3.33596	.571	.226	8.00	25.00
Perceived behavioral control	121	39	5.8595	1.77626	.062	.220	2.00	10.00
peer influence	117	43	6.4188	1.70819	.167	.224	2.00	10.00
superior influence	116	44	6.4052	1.70410	.289	.225	2.00	10.00
Student influence	117	43	6.2991	1.57713	.123	.224	2.00	10.00
Compatibility	120	40	5.7083	1.98056	.018	.221	2.00	10.00
Self efficacy	118	42	8.6780	3.26568	.147	.223	3.00	15.00

Appendix H: Post-Secondary Instructor Survey

General Instructions

The survey form in this research has been edited and placed into SurveyMonkey.com . It was modified from one developed by H. Ajjan and R. Hartshorne (2008).

It is important that you know that this research will not connect you with any opinion or statement that is collected in this research. All input will be held in strickest of confidence.

This survey includes four sections and each section includes several items.

Please respond to each of the items as accurately as you can either by clicking on the appropriate box/circle or by typing your answer in the space provided.

When you finish one section, click on "Next" to go to the next section. When you finish the survey (all of four sections), click on "Done" which is located at the end of the 4th section. At any time, you can click on "Previous" to go back to the previous section.

Section (1): General Information

Remember that your participation is both confidential and voluntary, and that you are free to withdraw at any point in time, without penalty.

Please respond to each of the following items either by clicking on the appropriate circle or by typing your answer in the space provided.

1.a) Please indicate your gender:

◯ Male

◯ Female

1.b) Please indicate your age:

◯ Under 30

◯ 31-39

◯ 40-49

◯ 50-59

◯ Over 60

1.c) Please indicate the type of post-secondary institution where you work:

◯ Public

◯ Private

1.d) please indicate your academic position/rank:

- ◯ Instructor
- ◯ Lab instructor
- ◯ Instructional Assistant
- ◯ Lecturer
- ◯ Educator
- ◯ Trainer
- ◯ Other (please specify)
  - [   ]

1.e) How many years of experience as full-time post-secondary instructor/ (any of the positions listed in (1.d) above) do you have?

[   ]

1.f) How many years of experience as part-time post-secondary instructor/ (any of the positions listed in (1.d) above) do you have?

[   ]

1.g) What is/are your current academic discipline(s)/teaching area(s)?

[   ]

Section (2): Web 2.0 Technologies*

This section contains three questions about you as a post-secondary instructor: the ability level with Web 2.0 technologies*, actual usage of specific Web 2.0 technologies in the classroom, and attitudes toward Web 2.0 technologies.

please respond to each of the items as accurately as you can by clicking on the appropriate box/circle.

(*Web 2.0 Technologies refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies.)

2.a) Please indicate your comfort level with the following Web 2.0 applications:

	Proficient	Competent	Novice	Never Use
Blogs (Blogger, WordPress, etc.)	◯	◯	◯	◯
Wikis (Seedwiki, Wikipedia, etc.)	◯	◯	◯	◯
Social Networking (Facebook, MySpace, etc.)	◯	◯	◯	◯
Social Bookmarking (Digg, Del.icio.us, etc.)	◯	◯	◯	◯
Instant Messaging (MSN Messenger, Yahoo Messenger, etc.)	◯	◯	◯	◯
Internet Telephony (Skype, etc.)	◯	◯	◯	◯
Audio/Video Conferencing (DimDim, FlashMeeting, etc.)	◯	◯	◯	◯

Other (please specify)

[   ]

2.b) To what extent do you use the following Web 2.0 applications to supplement your in-class lecture?

	Frequently use	Use occasionally	Don't use but plan to use	Don't use and don't plan to use
Blogs (Blogger, WordPress, etc.)	◯	◯	◯	◯
Wikis (Seedwiki, Wikipedia, etc.)	◯	◯	◯	◯
Social Networking (Facebook, MySpace, etc.)	◯	◯	◯	◯
Social Bookmarking (Digg, Del.icio.us, etc.)	◯	◯	◯	◯
Instant Messaging (MSN Messenger, Yahoo Messenger, etc.)	◯	◯	◯	◯
Internet Telephony (Skype, etc.)	◯	◯	◯	◯
Audio/Video Conferencing (DimDim, FlashMeeting, etc.)	◯	◯	◯	◯

Other (please specify)

[   ]

2.c) What are, in your opinion, the advantages of using each of the following Web 2.0 technologies? (Please choose all that apply.)

	Improve students' interaction with faculty	Improve students' interaction with other students	Improve students' learning	Improve student's satisfaction with the course	Improve student's writing ability	It could be easily integrated into my course
Blogs (Blogger, WordPress, etc.)	☐	☐	☐	☐	☐	☐
Wikis (Seedwiki, Wikipedia, etc.)	☐	☐	☐	☐	☐	☐
Social Networking (Facebook, MySpace, etc.)	☐	☐	☐	☐	☐	☐
Social Bookmarking (Digg, Del.icio.us, etc.)	☐	☐	☐	☐	☐	☐
Instant Messaging (MSN Messenger, Yahoo Messenger, etc.)	☐	☐	☐	☐	☐	☐
Internet Telephony (Skype, etc.)	☐	☐	☐	☐	☐	☐
Audio/Video Conferencing (DimDim, FlashMeeting, etc.)	☐	☐	☐	☐	☐	☐

Other (please specify)

[   ]

Section (3): Web 2.0 Technologies* Adoption

This section consists of a series of items using a five-point Likert-scale (strongly agree to strongly disagree).

Your accurate responses in this section will help to examine factors that influence post-secondary instructors' intentions to utilize Web 2.0 technologies in their courses.

Please respond to each of the following items as accurately as you can by clicking on the appropriate circle.

(*Web 2.0 Technologies refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies.)

3.a) In the context of using Web 2.0 technology in a classroom, to what extent do you agree or disagree with the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe that I could communicate to others the consequences of using Web 2.0 in the classroom	○	○	○	○	○
I would have no difficulty explaining why Web 2.0 technologies may or may not be beneficial	○	○	○	○	○
I plan to use Web 2.0 technologies in my classroom	○	○	○	○	○
I intend to use Web 2.0 technologies within the next semester	○	○	○	○	○
I will add Web 2.0 technologies to my class next semester	○	○	○	○	○
Web 2.0 is useful in my teaching	○	○	○	○	○
The advantage of using Web2.0 outweighs the disadvantages of not using it	○	○	○	○	○
Using Web 2.0 is a good idea	○	○	○	○	○
I feel that using Web2.0 will be easy	○	○	○	○	○
I feel that using Web 2.0 will be easy to incorporate in my classroom environment	○	○	○	○	○
I feel that using Web 2.0 will help my students learn more about the subject	○	○	○	○	○
I feel that using Web 2.0 will improve students' satisfaction with the course	○	○	○	○	○
I feel that using Web 2.0 will improve students' grades	○	○	○	○	○
I feel that using Web 2.0 will improve students' evaluation	○	○	○	○	○
To help my students better learn the material, I will incorporate Web 2.0 technologies in the classroom	○	○	○	○	○
Using Web 2.0 technologies is compatible with the way I teach	○	○	○	○	○
Using Web 2.0 technologies fits well with the way I teach	○	○	○	○	○
My peers think I will benefit from using Web 2.0 technologies in my classroom	○	○	○	○	○
My peers are using Web 2.0 technologies in their classroom	○	○	○	○	○
My superior confirms my ability and knowledge to use Web 2.0 technologies in the classroom	○	○	○	○	○
My superior thinks it is important I use Web 2.0 technologies in my classroom	○	○	○	○	○

Statement	○	○	○	○	○
My students thinks it is important I use Web 2.0 technologies in my classroom	○	○	○	○	○
Using the Web 2.0 technologies is entirely within my control	○	○	○	○	○
I have the knowledge and ability to use Web 2.0	○	○	○	○	○
Peers who influence my behavior would think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
Peers who are important to me would think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
My superior, who influences my behavior, would think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
My superior whom I report to would think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
Students who influences my behavior think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
students who are important to me think that I should use Web 2.0 technologies in the classroom	○	○	○	○	○
I can use Web 2.0 technologies using any computer connected to the Internet	○	○	○	○	○
The Web 2.0 technologies are compatible with the computer I already use in the classroom	○	○	○	○	○
I know enough to use Web 2.0 technologies	○	○	○	○	○
I could easily use Web 2.0 technologies on my own	○	○	○	○	○
I would feel comfortable using Web 2.0 technologies	○	○	○	○	○

Section (4): Web 2.0 Technologies Workshops

Please respond to each of the following items by clicking on the appropriate circle.

4.a) Does your college organize Web 2.0 tools* workshops, training program, or professional development for its instructors to learn about using Web 2.0 tools* in education?

(*Web 2.0 tools refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies.)

◯ Yes
◯ No

4.b) During your post-secondary school employment have you received any training in using Web 2.0 tools* in education?

(*Web 2.0 tools refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies.)

◯ Yes
◯ No

4.c) Would you like to attend any workshop, training program, or professional development about using Web 2.0 tools in education?

(*Web 2.0 tools refer to the World Wide Web sites which allow users to change website content or to interact with other users and share each others data. Examples of Web 2.0 tools include social-networking sites, video-sharing sites, wikis, blogs, social bookmarking, mashups and folksonomies.)

◯ Yes
◯ No