Motivating Factors for Faculty to Use Web Applications in Education

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ABSTRACT
The social nature of Web applications have the potential to empower education. These applications provide a learning environment in which students can construct their learning, collaborate with others, generate ideas, edit and distribute their material, and more. The better way to seed Web applications into the learning environment and to make them effective educational tools is to implement them in the pre-service teachers programs.

This research aimed to investigate the influence of knowledge and experience of Web applications, perceived ease-of use, perceived usefulness, perceived pedagogical support, perceived risk, and colleagues' influence on the faculty's decision to adopt Web applications in their teaching within the pre-service teacher programs. Two hundred forty-nine faculty participated in this study by filling an online questionnaire that was self-designed and was distributed to a random proportional stratified sample of the faculty who teach at the colleges of education in American universities.

The findings reflect that the faculty currently teaching in these programs are knowledgeable of and have experience in using Web applications and even intend to implement them more in their teaching in the future. The findings showed that faculty knowledge and experience of Web applications and faculty perception of the usefulness of such applications were significant predictors of faculty intention to use Web applications in teaching. This, in turn, is a strong predictor of their actual use. Implementation of the study was provided, along with recommendations for further research.

INTRODUCTION
Preparing K-12 teachers to implement technology effectively in their teaching is an important issue in the 21st Century (Adcock & Bolick, 2011; Kumar &Vigil, 2011). PK-12 teachers are expected to keep up-to-date with the developments in technology and take advantage of their ability to facilitate learning in order to teach the next generation (Coutinho & Bottentuit Jr., 2008). With the emerging Web applications that facilitate social communications and interactions, more people at different age levels have joined online communities as active participants. Web applications can be effective tools to engage learners, especially those who prefer to communicate this way (Rudd & Walker, 2010). Additionally, today's digital students are highly involved in Web applications (Muñoz & Towner, 2009). Integrating tools that students have already engaged within their learning has become vital (Samarawickrema, Benson & Brack, 2010).

Greenhow (2007) has called the widespread use of Web applications a significant phenomenon that impacts PK-12 teacher preparation for the 21st Century. These tools offer the opportunity to generate, edit, and share knowledge and information within groups of interest and communities of practice (Franklin & Van Harmelen, 2007).

STATEMENT OF PROBLEM
Integrating Web applications into pre-service education teacher programs allows educators to find learning activities that go beyond cognitive knowledge to include 21st Century skills, including communication, creativity, productivity, critical thinking, collaborative working and social interaction within a community. Nevertheless, pre-service education teacher programs don't provide enough experience with integrating technology into teaching (Adcock & Bolick, 2011) and there is a large gap between the use of Web applications in daily life and in the coursework of pre-service teachers (Kumar & Vigil, 2011). Lack of such integration affects the ability of pre-service teachers to incorporate these tools into their teaching. There is a need to identify factors that can be used to facilitate adoption of Web applications in such programs "in order to provide practitioners with sound guidelines for deployment and training" (Gribbins, Hadidi, Urbaczewski, & Vician, 2007, p. 752)

THE PURPOSE OF THE STUDY
Applying the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), this study aims to investigate the impact of gender, age, knowledge and experience of Web applications, the perceived ease-of use, usefulness,

pedagogical support, and risk of using Web applications in teaching, as well as colleagues' influence on the faculty's decision to adopt these tools into the pre-service teachers programs. The TRA suggests that a person's action is driven by what he or she concludes from the information that he or she has about a specific topic.

THE SIGNIFICANT OF THE STUDY

Despite the emergence of Web applications in the everyday life of students (Ajjan & Hartshorne, 2008), technology used in education has been limited to delivering learning materials (Maloney, 2007). Digital students, as Rudd and Walker (2010) found, access Web applications extensively to express their opinions, participate in discussions with peers and for personal use. Their high involvement and engagement in Web applications (Muñoz & Towner, 2009) that encourage their active participation (Coutinho, 2009) should lead teachers to consider integrating such applications in learning.

The first step to using Web applications in learning is to bridge the gap between the online world and the classroom (Light, 2011) and effectively include in pre-service teacher programs experience with and training in the use of Web applications in teaching (Albion, 2008). This study aims to outline the factors that influence faculty in pre-service teacher programs to implement Web applications in their teaching, which in turn will help the decision-makers within pre-service teacher programs to develop better strategies to help faculty to adopt these applications.

RESEARCH QUESTIONS

This study attempts to address the following questions:

a. Do gender and age predict faculty's intention to adopt Web applications in their teaching in the pre-service teacher bachelor-level programs in the United State?
b. Do knowledge and experience of Web application, perceived ease-of use, perceived usefulness, perceived pedagogical support, perceived risk, and colleagues' influence predict faculty's intention to adopt Web applications in their teaching in the pre-service teacher bachelor-level programs in the United States over and above gender and age?

LITERATURE REVIEW

Web applications refer to the Web-based applications in which users can access, customize, read and write, add to the content, and collaborate with other users. Web applications include wikis, blogs, Facebook, Twitter, YouTube, Podcast, Google Documents, Wikipedia, WordPress, Flicker, Skype, Prezi, and RRS to name a few.

The advantages of Web applications.

Literature reveals many advantages of using Web applications in education. Web applications open the door to direct communications among learners and educators (Greenhow, 2007; Light, 2011; Schroeder, Minocha, & Schneider, 2010; Tarik & Karim, 2011); support collaboration among learners (Duffy, 2007; Maloney, 2007; Rudd & Walker, 2010); change the way of sharing, accessing and interacting with information (Tarik & Karim, 2011; Teclehaimanot & Hickman, 2011); allow students to generate, socialize, and access their learning in unexpected ways (Duffy, 2007); promote the interactive use of the Web (Duffy, 2007; Rudd & Walker, 2010); and enhance user-generated content (Light, 2011). These tools provide learning in different forms that are appropriate for diversity learners (Coutinho, 2009); can be carried on mobile phones, thus freeing the Internet from physical place restrictions (Imperatore, 2009); improve students' technical skills (Coutinho et al., 2008; Schroeder et al., 2010); support multiple intelligences such as textual, visual, and social (Brown, 2002); allow the co-creation of content (Greenhow, 2007) and can be used to create authentic learning activities (Duffy, 2007). Web applications allow students to produce and publish (Solomon & Schrum, 2007); provide a user-friendly workplace (Silva, Oliveira, Carvalho, & Martins, 2008) and relaxed environment for students to work in (Tarik & Karim, 2011). These applications help in improving learning through the feedback and comments that students provide each other (Schroeder et al., 2010). Web applications are a means by which individuals can share their feelings, opinions and experiences as well as make use of what others share (Augustsson, 2010), and these tools are free and easy to use (Imperatore, 2009, Solomon & Schrum, 2007).

The risks of Web applications.

Despite the advantage of using Web applications in education, there are some concerns. One is the difficulty of assessing students' activities (Schroeder et al., 2010; Waycott et al., 2010). Student Web authoring activities, for example, require different assessment strategies (Gray et al., 2010). Waycott et al. (2010) explained that collaborative authoring is difficult to assess because students can edit or delete their peers' contributions. The writing style used for Web assignments differs from the academic writing style required for other assignments because many Web applications can be used as online journals and allow students to incorporate audios, videos, photos and links (Waycott et al.). Additionally, uncertainty about the ownership of the collaborative work in

these social environments made it difficult to determine each individual's contributions for assessment purposes (Schroeder et al., 2010). Gray et al. (2010) expected that the barrier of assessment could prevent further adoption of these tools in higher education.

Another challenge to using Web applications in educating is that many students in higher education are not net savvy (Gray et al., 2010); not all students are independent learners; some need organized support and selected content (Bates, 2011). They may need to be taught how to use these tools to interact and communicate within the online environment (Schroeder et al., 2010). Faculty may need professional development in use of Web applications in a pedagogical manner (McLoughlin & Lee, 2007). While these tools are perceived to be easy to use (Anderson, 2007; Imperatore, 2009; Solomon & Schrum, 2007), the difficulty of implementing them in teaching and learning is still a concern (McLoughlin & Lee, 2007).

The copyright issue is always a concern when publishing work on the Internet. Kawashima (2010) argued that Web applications, by their ability to use, produce and create content, introduced mini creators, which added a new challenge to the copyright issue. These mini creators, as defined by Kawashima, are not professional artists but ordinary users who copy existing videos on the web, then add to, edit, change, and post the resultant videos to the Web, making them accessible to millions of people. Kawashima suggested that the copyright law should consider their creative contribution. Additionally, some students were concerned that their work could be copied so they did not feel comfortable publishing in open environments such as wikis or blogs (Waycott et al., 2010).

Schroeder et al. (2010) reported that another drawback of using Web applications in learning and teaching is increasing the workload for both students and educators as well as the time and effort needed to set up these tools, monitor the contributions and administrate the users. This created an extra workload for the educators besides operation the course itself. Students sometimes perceived the ongoing interaction as an extra task that impacted the flexibility of online learning since they had to wait for their peers' contributions to reach a common understanding.

Other weaknesses of the use of Web applications in education may cause concern. A supporting culture of student participation in content-creation is needed (McLoughlin & Lee, 2007). There is a need to maintain appropriate forms of interaction in these social environments (Schroeder et al., 2010). The use of Web applications involves sharing artifacts for others in the public domain to read and comment (Hughes & Oliver, 2010), which raises the risk of appropriation and privacy (Waycott et al., 2010). There is a possibility of misunderstanding when interacting through such social tools (Augustsson, 2010). Some Web applications are established by small businesses seeking to provide free service in the hope of producing advertising that should be monitored by educators, and "students must also be taught how to evaluate Internet information sources" (Imperatore, 2009, p. 2). More concerns will arise as additional Web applications emerge. However, "these tools are worth the trouble of learning how to use them, because when done right, they can add a whole new dimension to learning" (Light, 2011, p. 15).

Theoretical Framework

Decades ago, scholars attempted to understand how people accept and use technologies. Several models and theories have been developed to find which factors influence adopting the technology. User adoption of a technology means "the user's intent to accept and use these systems" (Alqahtani et al., 2010, p. 22). Table 1 presents some theories and models and highlights the factors that each model or theory suggests as predictors to the use of technology.

The Theory of Reasoned Action (TRA) suggested by Ajzen and Fishbein (1980) was established on the idea that people make logical use of the information they have and act accordingly. No "social behavior is controlled by unconscious motives or thoughtless in nature" (Grunwald, 2002, p. 47). TRA tries to understand human behavior and then to predict it through identifying the factors that influence the intention to such behavior. The *intentions* "are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance" (Ajzen, 1991, p. 181).

The theory of reasoned action claims that behavioral intention is the strongest cause of a behavior. Behavioral intention has two elements: the attitude and the subjective norm (Ajzen & Fishbein, 1980), "either of which might be the most important determinant of any particular behavior" (Trafimow, 2009, p. 506).

Attitude toward the behavior "refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). The attitude is driven by behavioral beliefs (Grunwald, 2002).

The second element in determining the behavioral intention is the subjective norm which can be "determined by beliefs about what specific important others think one should do and how much one is motivated to comply with those important others" (Trafimow, 2009, p. 506). In other words, the subjective norm is driven by normative beliefs (Grunwald, 2002). These two factors are seen, according TRA, as the predictors of an intention but their relative weights may differ from one person to another (Grunwald, 2002).

Table 1: Theories and Models of Technology Acceptance

Developer	Theory	Factors included in the theory
Rogers (1962)	Diffusion of Innovation	Relative advantage, compatibility, complexity, trialability, & observability
Ajzen & Fishbein (1975)	The Theory of Reasoned Action	Attitude, subjective norm, & intention
Ajzen (1985)	Theory of Planned Behavior	Attitude, subjective norm, & perceived behavioral control
Davis (1986)	The Technology Acceptance Model	Perceived usefulness & perceived ease of use

Factors influencing the adoption of Web applications (The Study Model).
Many studies investigated the adoption of Web applications based on the pre-mentioned theories and models of predicting human behavior and revealed several factors leading to such adoption. Examples of these studies are listed in Table 2 (Ajjan & Hartshorne, 2008; Aladwani, 2011; Dwivedi et al., 2011; Guo & Stevens, 2011; Corrocher, 2011; Ceccucci, Peslak & Sendall, 2010; Orehovacki et al., 2009; Ulrich & Karvonen, 2011). Literature revealed factors significant in predicting adoption of technology such as knowledge and experience of Web applications, perceived ease-of use, and perceived usefulness (Ajjan and Hartshorne, 2008; Brown, 2012; Corrocher, 2011; Dwivedi et al., 2011; Guo and Stevens, 2011; Ulrich and Karvonen, 2011).

Table 2: Studies which Investigated Adoption of Web Applications

Study	Examined Factors	Outcome	Model used
Ajjan & Hartshorne (2008)	Attitude Perceived behavioral control Subjective norm	Intention to use Web applications and actual use	The decomposed theory of planned behavior
Aladwani (2011)	Age Training Web applications attitudes Gender	Acceptance of Web applications	Technology Acceptance Model
Corrocher (2011)	The users' characteristics The technological features.	Intensive usage of Web applications	Diffusion of Innovation Model with Technology Acceptance Model
Dwivedi et al., (2011)	Perceived Ease-of use and Usefulness	Behavioral intentions to use Web applications	Technology Acceptance Model
Guo & Stevens (2011)	Prior experience Perceived usefulness Perceived ease of access to technology	Using wiki	Technology Acceptance Model
Orehovacki et al., (2009)	Personal characteristics Types of online activities Motivation	Use of Web applications	Technology Acceptance Model
Shin (2010)	Trust	Use Web applications	Social Network Services Model (proposed model)
Ulrich &	Attitude related to learner self-	Interest,	Technology Acceptance

Karvonen (2011)	direction, instructional innovativeness; knowledge, conditions	Attitude toward technology and Interest, and contextual	Intention, Use of Web applications	Model

The implementation of Web applications in teaching "requires faculty understanding and endorsement of the pedagogical use of Web 2.0 applications" (Ulrich & Karvonen, 2011, p. 207). Perceived pedagogical support is suggested as a factor that influences the faculty decision to use Web application in their teaching. The adoption of Web applications in teaching and learning, as with the adoption of any new technology, involves risk (Corrocher, 2011). The perceived risk factor is suggested as another influence to decisions about using such tools.

Colleagues' influence in using technology cannot be ignored. "Individuals who perceive that others expect that they should use the system will have a high score on intentions to use the system, even when they may personally not feel positive about the system" (Teo, 2009, p. 93). Based on what has been presented, the framework in Figure 1 is suggested.

What the model suggests is that faculty can use Web applications in their classrooms if they know about them, have experienced using them personally and their colleagues' influence. Since most these proposed factors fit in the three categories that Corrocher (2011) suggested "when studying individual choices of technology adoption, the literature generally focuses on three sets of determinants:
adopters' characteristics, features of the social environment, and attributes of the technology" p. 548).

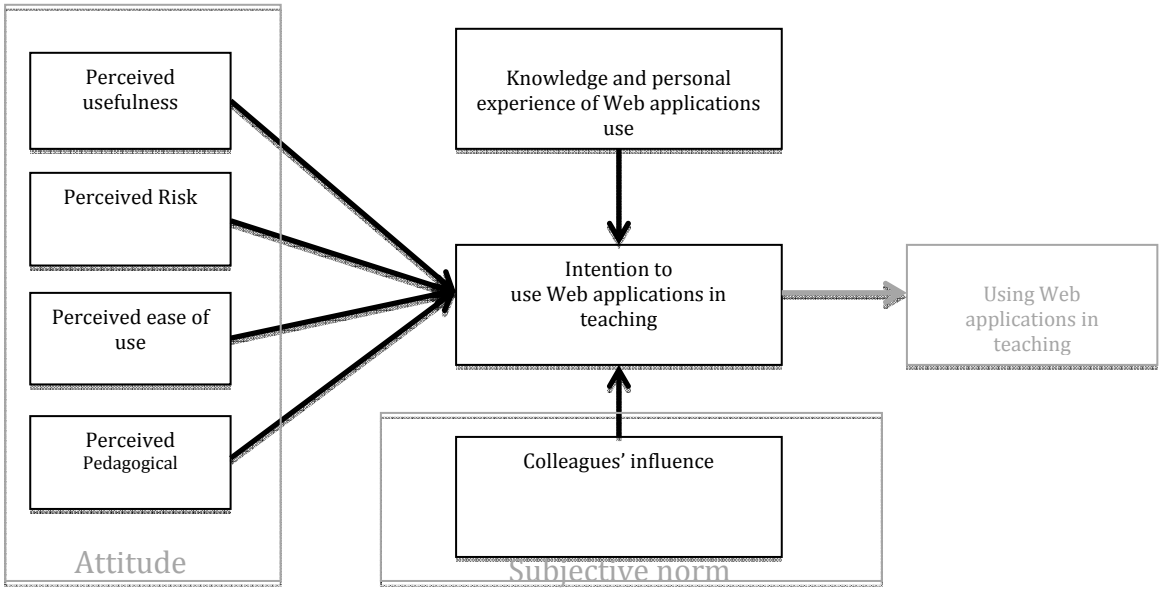

Figure 1. The study model to be used in this research.

Adopters' characteristics. While they are essential to understanding individuals' decisions of acceptance technology (Venkatesh, Morris, Davis & Davis, 2003), "scanty attention has been paid to study personal determinants of Web 2.0 usage" (Aladwani, 2011, p. 483). Age and gender, for example, have been found to be essential influences in adopting a new technology (Gribbins et al., 2007).

Age. Users of different ages have different aims in using technology. Corrocher (2011) found that age affected the use of Web applications. For example, older users (lower than 30) used social bookmarking more than did younger users (more than 30) who use the social network services significantly more for sharing materials with friends as well as for fun. Corrocher explained, "social bookmarking services are likely to be more popular among relatively older people, as these services entail a certain degree of job-related usefulness" (p. 554).

Gender. Gender is always expected to affect the social communication behavior (Chai et al., 2011). Even though gender differences have diminished in the use of technology (Heemskerk et al., 2009) it is recommended that gender difference be included when studying the use of technology in education (Selwyn, 2007). Huang,

Hood, and Yoo (2013) found results supporting Selwyn's claim as they found significant difference between males and females in their perceptions toward Web applications when used for learning.

Other studies found no gender difference when using Web applications. Top, Yukselturk and Cakir (2011) examined gender differences in educators' use of Web applications with respect to specific elements such as actual use, perceived ease of use and usefulness, attitude, self-efficacy, compatibility, and perceived behavioral control. They found no significant difference between female and male K-12 teachers in their use of Web applications. Aladwani (2011), in his study of the personal determinates of the use of Web applications, found that gender has no effect on either the attitude or the use of Web applications. Huang et al. (2013) suggested that the gender differences diminishment might be contributed to certain Web applications features.

Knowledge and experience. Ulrich and Karvonen (2011) found that the knowledge of Web applications was significant in predicting the instructors' intention to use these applications in education, which in turn significantly influenced the instructors' interest in using Web applications as a learning tool. Brown (2012) found that participants who made frequent use of Web applications and for different purposes are seeing Web applications as tools to distribute learning materials and to enhance the active role of the learner. Greater use of these tools for different purposes, Brown explained, prompts better understanding of the tools' characteristics and, accordingly, their potential in learning. Corrocher (2011) also found that the users' experience of some of Web applications played an important role in the intensity of using them.

Attributes of the technology.

Perceived usefulness refers to "the belief that using technology will enhance performance" (Taylor & Todd, 1995, p. 148). Perceived usefulness was one of two factors that Davis (1989) proposed as predictors to the attitude toward computer usage. Several studies reviewed by Grunwald (2002), intended to examine the impact of perceived usefulness as well as other different factors on the intention to use technology, have found that perceived usefulness is a strong predictor of intention. Corrocher (2011) argued that usefulness is one of the factors associated with the intensity of using technology.

The perceived usefulness of technology can refer to its usefulness for educators themselves as well as for their students. Ajjan and Hartshorne (2008) conducted a study to examine faculty's awareness of the advantages of using a Web application in learning and to understand the influences of such use. They found that perceived usefulness was a significant factor in predicting the attitude toward using the Web application. Another study by Dwivedi et al. (2011) was intended to examine the factors that influence users in general to adopt Web applications found that the perceived usefulness was a significant predictor of the user's intention to use Web applications, which in turn is a significant predictor of the behavioral intentions to use Web applications.

Perceived ease of use refers to "the belief that the use of the new technology will be free of effort" (Taylor & Todd, 1995, p. 148). Corrocher (2011) defined ease of use as "the extent to which an innovation is perceived as relatively difficult to understand and use -its complexity or perceived difficulty of use-" (p. 548). By reviewing several studies intended to examine the impact of ease of use as well as other factors in the intent to use technology, Grunwald (2002) found that the perceived ease of use factor was significant.

While the ease of use positively affects the use of any technology, the "complexity does not only influence the adoption decision, but it also negatively affects the use of the technology after its adoption, by hampering the complete use or assimilation of the new technology" (Corrocher, 2011, p. 548). Corrocher explained that implementing complex technology involves a great effort to learn the necessary knowledge at the individual level as well as the organizational level.In regard to the use of Web applications in learning, Ajjan and Hartshorne (2008) found that ease of use was a significant predictor of the faculty attitudes toward using Web applications in learning. Dwivedi et al. (2011) found it a significant factor to predict the user's intention to use Web applications and accordingly a significant predictor of the actual use of Web applications

Perceived Risk. Several studies have focused on the perceived risk when using Web applications, "with the idea that the adoption of a new product (new technology) is a risky decision because there might be undesirable consequences of the adoption related to the disruption of consumers' existing routines and to possible conflict with existing beliefs" (Corrocher, 2011, p. 549). Examples of undesirable consequences in the context of using Web applications in teaching and learning are exposing students' private information to the public, low quality of the learning materials that created by students, privacy or unreliable assessment instruments.

Perceived pedagogical support. Veen (1993) found that the stronger factor that drove educators to use technology was their beliefs in regard to how technology supports their pedagogical strategy. Perceiving Web

applications as tools that support the new trends of learning can influence the faculty decision to adopt those applications in their teaching. Considering the impacts of Web applications on learning and, consequently on the practice of pedagogy, is critical (Duffy, 2007). The old way of teaching was presentation-driven where the information was presented and then tested (Solomon & Schrum, 2007). Web applications require an approach that considers learning as building knowledge through understanding, sharing, discussing, and giving feedback. The use of Web applications in education needs a supporting culture of student participation in content-creation (McLoughlin & Lee, 2007).

Social environment (Colleagues' influence)

The subjective norm was identified, by Ajzen and Fishbein (1975), as one of two elements that influence the behavioral intention in the theory of reasoned action. Subjective norm "refers to the perceived social pressure to perform or not perform the behavior" (Ajzen, 1991, p. 188). Rogers (1995) implied that social pressure is an influence to use the technology when describing the early adopters as they were driven by social prestige.

Educators' decision to use technology, as Teo (2009) found, is significantly influenced by the "expectations they feel the important 'others' have on them regarding the use of technology" (p. 103). "Applied to faculty use of Web 2.0, subjective norms will reflect the faculty's perception of whether their behavior is encouraged and accepted within their circle of influence" (Ajjan & Hartshorne, 2008, p. 74). Brown (2012) found evidence of the influence of colleagues on the academics' perceptions of Web as a learning tool. Peers' encouragement is important in shaping the attitude toward a technology, especially when the adopters have little experience at the early stage of the adopting (Guo and Stevens, 2011). Marcinkiewicz and Regstad (1996) explained the impact of such pressure is that the educators "would feel out of line by not using computers for teaching" (p. 31).

METHODOLOGY

The study can be described as a relational one as it examines the variation in predictors and outcomes to find out whether they are associated.

The Research Hypotheses

It is expected that the knowledge and personal experience of Web applications (KPE), perceived usefulness (PU), perceived ease-of use (PE), perceived pedagogical support (PPS), perceived risk (PR), and colleagues' influence (CI) are significant predictors of the faculty's intention to use Web applications in teaching (Ajjan & Hartshorne, 2008; Brown, 2012; Corrocher, 2011;Dwivedi et al., 2011; Duffy, 2007; Guo & Stevens, 2011; McLoughlin & Lee, 2007; Teo 2009; Ulrich & Karvonen 2011). As a result, entering them as a second step when using a hierarchical regression is expected to change R^2 significantly. In order to answer the research questions and test the model, the following hypotheses have been proposed.

H_{01}: The gender and age are not significant in predicting the faculty's intention to use Web applications in teaching (IU).

H_{a1}: The gender and age are significant in predicting the faculty's intention to use Web applications in teaching (IU).

H_{02}: The change in R^2 from model 1 to model 2 = 0, when using a hierarchical regression entering gender and age first as a group and next entering the six predictors as a group.

H_{a2}: The change in R^2 from model 1 to model 2 $\neq$ 0.

Instrumentation

The questionnaire includes four parts (Appendix A). Part 1 collects demographic information such as gender, age, and rank. Part 2: has close-ended questions to collect data about the usage of Web applications personally, for teaching, and in the future. Part 3 contains 31 close-ended items using a four-point Likert-Scale to examine the influence of five factors (perceived usefulness, ease of use, risk, pedagogical support, and the colleagues' influence, on the decision to use Web applications in teaching. Part 4 allows for participant comments.

The Population

The target population of the study were faculty, males and females, full-time tenure track, non-tenured assistant, associate, and full professors as well as adjunct and/or instructor ranks, currently teaching undergraduate courses in the teacher education department in the colleges of education at universities in the United States

The Sample

Sample size. Because developing a prediction model is a concern in this study, the Precision Efficacy Analysis for Regression (PEAR) was selected to determine "the smallest sample that will provide the reliability of results required across multiple samples" (Brooks & Barcikowski, 2012, p. 1). PEAR requires an expected effect size as well as precision efficacy to be determined a priori. In the multiple regression studies, the effect size can be the

squared multiple correlation R^2 (Brooks & Barcikowski). Precision efficacy (PEf) refers to "how well a regression model is expected to perform when applied to future subjects relative to its effectiveness in the derivation sample" (Brooks & Barcikowski, 2012, p. 5). Literature was lax in providing a decent estimate of the R^2 of the combination of the proposed variables in this study, so the multiple regression using a hierarchical method was run to the pilot study. The adjusted R^2 was .725. Applying the PEAR using R^2 = .30, and PEf = .80 with nine variables (eight predictors and one dependent variable) the smallest sample size required for this study equaled 22.2 * 9 ≈200.

Sampling. After obtaining all the official required consent forms to contact the faculty and conduct the study, a list of all universities in United States that have colleges of education was obtained from univsource.com. (http://www.univsource.com/ed.htm). A proportional stratified sampling was used. Table 3 presents the number of potential participants from each region (West, Midwest, South and Northeast). For each region, the following steps were followed:

1. The universities were ordered alphabetically and assigned an integer number
2. Using the Randomizer.org website, http://www.randomizer.org ten random integer numbers were generated.
3. The universities that correspond to these random numbers were included in the sample.
4. A cluster sample then was used in which all faculty in the teacher education department in these universities were included as potential participants and their email addresses were obtained.
5. Steps 2-4 were repeated until the target number of potential participants in Table 3 is reached.

Table 3: Proportional Stratified Sampling

Region	Number of universities		Number of potential participants	
	N	%	N	%
West	68	19	380	19
Midwest	88	25	500	25
South	153	43	860	43
Northeast	48	13	260	13
Total	357	100	2000	100

The first and last names of the faculty were obtained from the university websites for the purpose of sending personal invitations to participate in the online survey. Heerwegh (2005) found that the response rate increased by 7.8% if personalized email invitations to an online survey were used.

Data Collection Procedure

"Online survey enables researchers to reach out to a large number of respondents within a short period of time and with minimal cost" (Dwivedi et al., 2011, p. 3). After obtaining IRB approval, a personal email invitation using the first and last names of each faculty member, including a link to the online survey and inviting recipients to participate, was sent to the potential participants. The email explained the purpose and benefit of conducting the study. Faculty were asked to voluntarily participate in completing the online survey and were informed that clicking on the survey link signaled their agreement to participate. They were assured that they could quit any time with no negative effect to themselves. A week after sending the email invitation, the number of participants was 133, a response rate of 6.65%. A week later, a reminder email was sent to the potential participants after removing those who had already replied which increased the number of participations to 249, with a response rate of 12%. This satisfies the minimum number (200) required to run a multiple regression that was calculated using the PEAR method. The survey was closed and the data were downloaded as a SPSS file form on the Qualtrics website.

Data Analysis Procedures

Statistical Package for the Social Sciences (SPSS), version 20, was used to analyze the data. For each positive item, a participant gained one point if he or she strongly disagreed with the item, two points for disagreeing, three points for agreeing and four points for strongly agreeing. For each negative item the order was reversed (four points for strongly disagree to one point for strongly agree). Item analysis included computing two sets of statistics for each item, as recommended by Mueller (1986) " (1) percentage of respondents making each response, [and] (2) item mean and standard deviation" (p. 13), as well as Cronbach's Alpha Coefficient for the internal consistency for each factor.

To answer the research questions, a hierarchical method of multiple regression was used. The hierarchical regression is used when "the focus is on the change in predictability associated with predictor variables entered later in the analysis over and above that contributed by predictor variables entered earlier in the analysis"

(Petrocelli, 2003, p. 9). The variables that were entered earlier or covariate were age and gender while the variables that were entered later were knowledge about Web applications, perceived usefulness, perceived ease of use, perceived risk, perceived pedagogical support, and colleagues' influence.

RESULTS

Demographic Findings

Of the 249 participants who completed the survey, 175 (70%) were females and 74 (30%) were males. There were 46 (19%) professors, 78 (31%) associate professors, 78 (31%) assistant professors, 27 (11%) instructors, and 20 (8%) from other categories such as lecturers, adjunct or visiting faculty. Broken down by race, most of the participants were White/ Caucasian 198 (80%); 31 (13%) were Black/ African American; seven (3%) were Hispanic; nine (4%) were Asian/Pacific Islander; two (1%) were Arabic/Middle Eastern and only one (.4%) participant was Native American Indian.

The participants' ages ranged from 23 to 75, with a mean average of 50 (SD = 11). Two hundred twenty-four (90%) of the participants were full-time faculty while 25 (10%) were part-time; 180 (72%) were tenure-track faculty while 69 (28%) were not.

Reliability of Instrument.

The instrument used to collect the data included eight constructs in addition to the demographic data and the open-ended questions. Cronbach's Alpha was calculated for each construct to ensure the reliability of the instrument. Cronbach's Alpha values ranged from .7 to .9, raising no concerns about the reliability of the variables. Table 4 presents the Cronbach's Alpha for each construct of the questionnaire, the number of items in each construct and the mean of the construct.

Table 4: *Cronbach's Alpha for Each Construct of the Questionnaire*

Construct	Cronbach's Alpha	Number of Items	The mean of the construct
Knowledge and personal experience (KPE)	.780	8	2.81/5
Using Web applications in teaching (USE)	.841	8	2.16/5
Intention to use Web applications (IU)	.856	8	2.95/5
Perceived Usefulness (PU)	.923	6	3.15/4
Perceived Ease of Use (PE)	.712	6	2.78/4
Perceived Risk (PR)	.667	5	2.29/4
Perceived Pedagogical Support (PPS)	.931	7	2.93/4
Colleagues' Influence (CI)	.793	7	2.82/4

Results for Hierarchical Regression.

The faculty's intention to use Web applications in their teaching was predicted from the following variables: Age, gender, knowledge and experience of Web application, perceived ease-of use, perceived usefulness, perceived pedagogical support, perceived risk, and colleagues' influence. The total N for this analysis = 249 Hierarchical multiple regression was performed in which the age and gender variables were entered in the first step. In the second step the remaining variables were entered together. Results are shown in Table 5 and Table 6.

In step 1, the regression, including age and gender, was not significant $R^2 = .003$, $F(2,246)= .235$, $P> .05$. This result means gender and age are not significant predictors of the faculty's intention to use Web applications in their teaching. The first null hypothesis was accepted.

H_{01}: Gender and age are not significant in predicting the faculty's intention to use Web applications in teaching (IU).

In step 2, the overall regression, including all eight variables, was significant. $R= .779$, $R^2 = .639$, adjusted $R^2 = .627$. $F (6,240) = 53.0$, $P< .05$. The R^2 change = .637 which was significantly different from zero. The second null hypothesis was rejected.

H_{02}: The change in R^2 from model 1 to model 2 = 0, when using a hierarchical regression entering gender and age first as a group and next entering the six predictors as a group.

Table 5: Multiple Regression : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.056[a]	.003	-.005	.88908	.003	.381	2	242	.684
2	.814[b]	.663	.651	.52378	.659	76.879	6	236	.000

a. Predictors: (Constant), Age in years, Gender
b. Predictors: (Constant), Age in years, Gender, KPE, PR, CI, PPS, PE, PU
c. Dependent Variable: IU

Table 6: Multiple Regression : Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	2.720	.350		7.771	.000			
	Gender	.073	.126	.037	.582	.561	.035	.037	.037
	Age in years	.002	.005	.026	.401	.689	.023	.026	.026
2	(Constant)	-.393	.441		-.891	.374			
	Gender	.025	.078	.013	.318	.751	.035	.021	.012
	Age in years	000	.003	.001	.028	.978	.023	.002	.001
	KPE	.571	.056	.533	10.210	.000	.749	.550	.396
	PU	.615	.146	.376	4.201	.000	.673	.262	.163
	CI	-.063	.095	-.028	-.661	.509	.247	-.043	-.026
	PPS	-.062	.137	-.039	-.454	.650	.616	-.029	-.018
	PR	-.018	.086	-.009	-.209	.835	-.169	-.013	-.008
	PE	.055	.104	.029	.527	.599	.530	.034	.020

a. Dependent Variable: IU

DISUCSSIONS

The result of the hierarchical multiple regression showed that the faculty's intention to use Web applications in their teaching can be predicted quite well from the set of these eight variables. Approximately 70% of the variance in the scores of the faculty's intentions to use Web applications was accounted for by the regression. R= .779 R^2 = .639, adjusted R^2 = .627. F (6,240) = 53.0, P< .05. The R^2 change = .637 was significantly different form zero. Only two predictors out of the eight tested in the model were significant in predicting faculty intent to use Web applications in teaching. The first significant predictor was knowledge and personal experience in using Web applications (KPE). This finding agrees with previous studies that knowledge about Web applications influences using them (Brown, 2012; Corrocher, 2011; Guo & Stevens, 2011; Teo, 2009; Ulrich & Karvonen, 2011).

The second significant predictor was perceived usefulness of Web applications in teaching (PU). This result was consistent with prior studies that found PU to be significant in predicting the intention to use technology in general (Corrocher, 2011; Grunwald, 2002) and use Web applications in particular (Ajjan & Hartshorne, 2008; Dwivedi et al., 2011; Guo & Stevens, 2011).

Even though previous research showed that the younger users were in general more involved in using Web applications (Corrocher, 2011; Kearns & Frey, 2010), this study did not reveal any age effect on the knowledge and personal experience of Web applications, the use of Web applications in teaching, and the intention to use such applications in teaching in the future (bivariate regression was performed three times to test the predictability of age on all theses three variables). This finding did not agree with the previous research, which revealed age differences in using technology (Aladwani, 2001; Corrocher, 2011; Kearns & Frey, 2010). What might explain such disagreement could be related to the voluntary aspect of participating in the study. Out of 2000 recipients of the online questionnaire, only 249 agreed to participate. It might be that only those who were interested in Web applications and their usage in education, despite the variance of their ages, chose to participate. The high mean of the perceived usefulness (M= 3.15/4) might supports such explanation.

Selwyn (2007) recommended including gender differences when studying the use of technology in education. Huang, Hood, and Yoo (2013) found significant differences between males and females in their perceptions of

Web applications when used for learning. The result of this study revealed no gender difference between males and females in their knowledge and experience of Web applications, using such applications in their teaching, their intention to use them in the future, their perceived usefulness, ease of use, pedagogical support, risk, or colleagues' influence on them. This finding is consistent with other research which claimed gender differences have diminished in the use of technology in general (Lucas, 2002; Heemskerk at el., 2009) or in using Web applications in particular (Aladwani, 2011, Huang et al., 2013; Top et al., 2011).

Final model. The researcher elected to remove the non-significant predictors from the final model because the aim was to find a model that reliably predicts the IU and not to explore how the suggested predictors perform. The significant predictors best describe the prediction need. To ensure that such decision will not cause any shrinking in the overall fit of the model values as well as the model parameters, a multiple regression including only the significant predictors was preformed and the results seemed identical. The final model is

IU'= -.4 + .571 KPE+ .62 PU

Where IU: faculty intention to use Web applications in their teaching.
KPE: faculty knowledge and personal experience of Web applications.
PU: faculty perception of the usefulness of Web applications in teaching.

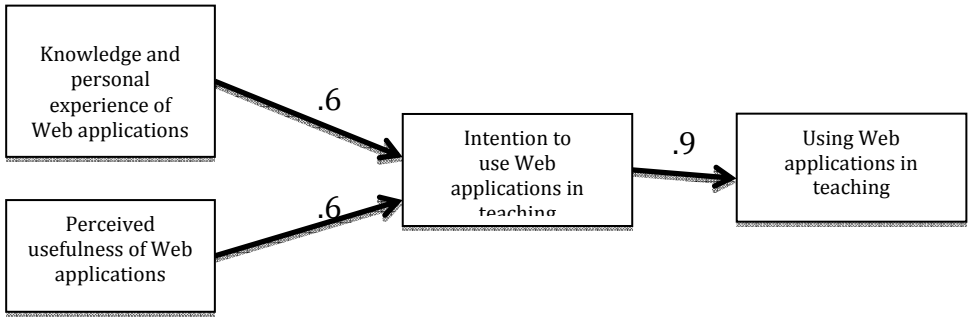

Figure 2. The final model.

The participants' comments revealed some barriers such as lack of motivation or time to learn about these applications, and ethical and technical issues prevent faculty from using Web applications in teaching. Some comments emphasize the need for training in the use of Web applications, while other comments revealed the faculty's positive attitude toward using Web applications in teaching; few comments revealed the opposite.

CONSLUSION

The result of the study showed an acceptable level of using Web applications in the pre-service teachers programs at the colleges of education in American universities. It revealed that the faculty currently teaching in theses program are knowledgeable of and have experience in using Web applications and even intend to implement them more in their teaching in the future. The faculty are aware of the applications, pedagogical value and usefulness and perceive the peers' encouragement to use Web applications. They are aware of the risks involved in using such applications but they do not prevent faculty from continuing to incorporate them in their teaching.

Faculty knowledge and experience of Web applications and their perception of the usefulness of such applications are significant predictors of faculty intention to use Web applications in teaching which, in turn, is a strong predictor to their actual use. The more faculty know about and experience Web applications and the more they perceive these applications to be useful the greater their intention to use these applications. This result implies the importance of raising faculty awareness of the usefulness and power of these applications in education and of training faculty through professional development sessions to implement such applications in their teaching.

Overall, the suggested model predicted the faculty intention to use Web applications using eight predictors: Age, gender, perceived usefulness, perceived ease of use, perceived risk, perceived pedagogical support, and colleague influence. Seventy percent of the variance in the scores of the faculty's intentions to use Web applications was accounted for by the regression.

RECOMMENDATIONS

1. The results revealed that the faculty at colleges of education in American universities implement Web applications in their teaching. This findings led to question whether that is the case at all colleges or only at colleges of education. This study recommends conducting a study to assess the use of Web applications among different disciplines in American universities.
2. This study found that knowledge and experience and perceived usefulness of Web applications are significant predictors of the intention to use Web applications while the colleagues' influence was a significant predictor to both knowledge and experience and perceived usefulness. It is recommended that a study be conducted to test the following model:

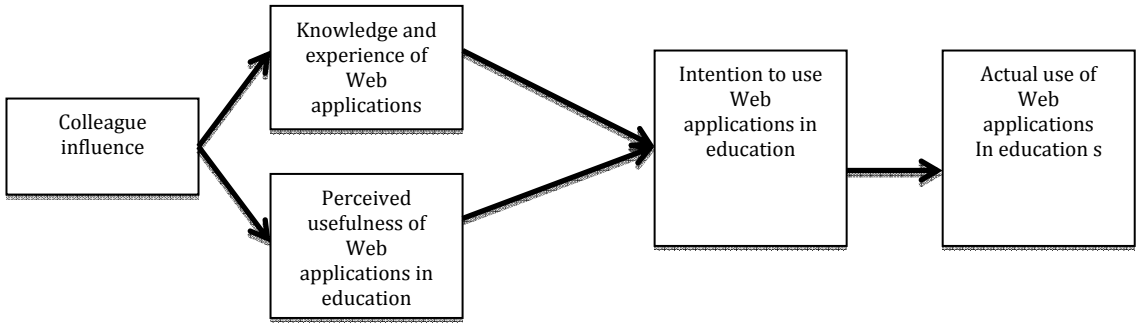

Figure 3 Suggested model to be investigated

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RESERENCES

Adcock, L., & Bolick, C. (2011). Web 2.0 tools and the evolving pedagogy of teacher education. *Contemporary Issues in Technology and Teacher Education*, *11*(2), 223-236.

Ajjan, H., & Hartshorne, R. (2008). Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests. *The Internet and Higher Education*, *11*(2), 71-80.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Aladwani, A. (2011). Analyzing the role of some personal determinates in Web 2.0 applications usage. *Issues in Information System 12*(1). 483-488.

Albion, P. R. (2008). Web 2.0 in teacher education: Two imperatives for action. *Computers in the Schools, 25*(3/4), 181-198.

Alqahtani, F., Watson, J., & Partridge, H. (2010). Users adoption of web 2.0 for knowledge management : position paper. In Brown, Irwin (Ed.) Proceedings of the International Conference on Information Management and Evaluation, Academic Publishing Limited, University of Cape Town, Cape Town, pp. 19-29.

Anderson, P. (2007). What is Web 2.0? Ideas, technologies and implications for education. JISC Technology and Standards Watch report TSW0701, 2-64.

Augustsson, G. (2010). Web 2.0, pedagogical support for reflexive and emotional social interaction among Swedish students. *Internet & Higher Education*, *13*(4), 197-205. doi:10.1016/j.iheduc.2010.05.005

Bates, T. (2010). Understanding Web 2.0 and its implications for e-learning. In MJW Lee and C McLoughlin (Eds*.) Web 2. 0-Based E-Learning: Applying Social Informatics for Tertiary Teaching.* Hershey, PA: IGI Global Press.

Brooks, G. P., & Barcikowski, R.S. (2012). The PEAR method for sample sizes in multiple linear regression. *Multiple Linear RegressionViewpoints, 38(2)*.

Brown, J.S. (2002). Growing up digital: How the Web changes work, education, and the ways people learn. *Journal of the United States Distance Learning Association*, 16 (2).

Ceccucci, W., Peslak, A. & Sendall, P. (2010). An Empirical Study of Behavioral Factors Influencing Text Messaging Intention. *Journal of Information Technology Management*, *21*(1), 1042-1319.

Chai, S., Das, S., & Rao, H. (2011). Factors affecting bloggers' knowledge sharing: An investigation across gender. *Journal Of Management Information Systems*, *28*(3), 309-342.
Corrocher, N. (2011). The adoption of web 2.0 services: An Empirical investigation. *Technological Forecasting and Social Change*, *78*(4), 547-558.
Coutinho, C. & Bottentuit Junior, J. (2008). The use of Web 2.0 tools to develop e-portfolios in a teacher training program: An exploratory survey. International Council on Education for Teaching (ICET). 193-205
Coutinho, C. (2009). E-learning 2.0: challenges for lifelong learning. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 2768-2773). Chesapeake, VA: AACE. Retrieved from http://www.editlib.org/p/31058
Duffy, P. (2007). Engaging the YouTube Google-Eyed generation: Strategies for using Web 2.0 in teaching and learning. *The Electronic Journal of e-Learning. 6*(2), 119 – 130.
Dwivedi, Y., Williams, M., Ramdani, B., Niranjan, S., & Weerakkody, V., (2011). Understanding factors for successful adoption of Web 2.0 applications. ECIS 2011 Proceedings. Paper 263. Retrieved August 2, 2011, from http://aisel.aisnet.org/ecis2011/263
Franklin, T. & Van Harmelen, M. (2007). Web 2.0 for content for learning and teaching in higher education. JISC Report.
Gribbins, M. L., Hadidi, R., Urbaczewski, A., & Vician, C. (2007). Technology-enhanced learning in blended learning environments: A report on standard practices. *Technology*, *11*, 30-2007.
Gray, K., Thompson, Sheard, J., Clerehan, R., & Hamilton, M. (2010). Students as Web 2.0 authors: Implications for assessment design and conduct. *Australasian Journal of Educational Technology, 26*(1), 105-122.
Greenhow, C. (2007). What teacher education needs to know about Web 2.0: Preparing new tachers in the 2st century. In R. Carlsen et al. (Eds.), Proceedings of Society for Information Technology & Teacher Education International Conference 2007 (pp. 1989-1992). Chesapeake, VA: AACE. Retrieved September 10, 2012,
Retrieved from http://www.editlib.org/p/24871.
Grunwald, H. (2002). Factors Affecting Faculty Adoption and Sustained Use of Instructional Technology in Traditional Classrooms. Unpublished dissertation. University of Michigan.
Guo, Z. & Stevens, K. J. (2011). Factors influencing perceived usefulness of wikis for group collaborative learning by first year students. *Australasian Journal of Educational Technology*, 27(2), 221-242. Retrieved September 12, 2012, from http://www.ascilite.org.au/ajet/ajet27/guo.html
Heemskerk, I., Ten Dam, G., Volman, M. & Admiraal, W. (2009). Gender inclusiveness in educational technology and learning experiences of girls and boys. *Journal of Research on Technology in Education, 41*(3), 253–276.
Heerwegh, D. (2005). Effects of personal salutations in e-mail invitations to participate in a web survey. *Public Opinion Quarterly*, *69*(4), 588-598.
Hughes, G., & Oliver, M. (2010). Being online: a critical view of identity and subjectivity in new virtual learning spaces. *London Review of Education* 8(1) 1–4. doi: 10.1080/14748460903574410
Huang, W., Hood, D., & Yoo, S. (2013). Gender divide and acceptance of collaborative Web 2.0 applications for learning in higher education. *Internet & Higher Education*, *16*57-65. doi:10.1016/j.iheduc.2012.02.001
Imperatore, C. (2009). What you need to know about Web 2.0. *Techniques: Connecting Education and Careers. 84*(1), 20-23.
Kawashima, N. (2010). The rise of 'user creativity' - Web 2.0 and a new challenge for copyright law and cultural policy. *International Journal of Cultural Policy*, *16*(3), 337-353. doi:10.1080/10286630903111613
Kearns, L. R., & Frey, B. A. (2010). Web 2.0 Technologies and Back Channel Communication in an Online Learning Community. *Techtrends: Linking Research & Practice To Improve Learning*, *54*(1), 41-51.
Kumar, S. & Vigil, K. (2011). The net generation as preservice teachers: Transferring familiarity with new technologies to educational environments. Journal of Digital Learning in Teacher Education 27(4), 144-153.
Light, D. (2011). Do Web 2.0 right? *Learning and Leading with Technology, 38*(5),10-15.
Lucas, S. (2002). Gender, faculty and teaching with the World Wide Web: A study of WebCT module use. Retrieved December 18, 2012 from http://susanlucas.com/it/ahe603/paper.html
Marcinkiewicz, H. R., & Regstad, N. G. (1996). Using subjective norms to predict teachers' computer use. *Journal of Computing in Teacher Education*, *13*(1), 27-33.
Maloney, E. J. (2007). What Web 2.0 can teach us about learning. *Chronicle of Higher Education*, *53*(18), B26-B27.
McLoughlin, C., & Lee, M. J. (2007). Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007* (pp. 664-675).

Munoz, C.L. & Towner, T.L. (2009). Opening Facebook: How to use Facebook in the college classroom. *Proceedings of Society for Information Technology & Teacher Education International Conference 2009.* p. 2623-2627.

Orehovacki, T., Bubas, G., & Konecki, M. (2009, June). Web 2.0 in education and potential factors of Web 2.0 use by students of information systems. In *Information Technology Interfaces, 2009. ITI'09. Proceedings of the ITI 2009 31st International Conference on* (pp. 443-448). IEEE.

Petrocelli, J. V. (2003). Hierarchical multiple regression in counseling research: Common problems and possible remedies. Measurement and Evaluation in Counseling and Development, 36(1), 9-22.

Rudd, P., Walker, M. (2010). Children and young people's views on Web 2.0 technologies. LGA Research Report. (ED511383)

Samarawickrema, G., Benson, R., & Brack, C. (2010). Different spaces: Staff development for Web 2.0. *Australasian Journal of Educational Technology, 26*(1), 44-49

Schroeder, A. A., Minocha, S. S., & Schneider, C. C. (2010). The strengths, weaknesses, opportunities and threats of using social software in higher and further education teaching and learning. *Journal of Computer Assisted Learning*, *26*(3), 159-174.

Selwyn, N. (2007). E□learning or she□learning? Exploring students' gendered perceptions of education technology. *British Journal of Educational Technology*, *38*(4), 744-746.

Silva, C. Oliveira, L., Carvalho, M. & Martins, S. (2008). 3c @higher education contribution, collaboration, community at higher education. In L. Gómez Chova et al (Eds.). INTED 2008, *Proceedings of International Technology, Education and Development Conference,*21*Valencia: IATED (International Association for Technology, Education and Development)*

Solomon, G., & Schrum, L. (2007). *Web 2.0 new tools, new schools.* Washington DC: International Society for Technology in Education.

Tarik, M. & Karim, A. (2011). The use of Web 2.0 innovations in education and training. Recent Researches in Computers and Computing. 140- 145. ISBN: 978-1-61804-000-8

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information systems research*, *6*(2), 144-176.

Teclehaimanot, B. & Hickman, T. (2011). Students-teacher interaction on Facebook: What students find appropriate. TechTrends 55(3).

Teo, T. (2009a). Modeling technology acceptance in education: A study of pre-service teachers. *Computers & Education*, 52, 302-312.

Top, E., Yukselturk, E., & Cakir, R. (2011). Gender and Web 2.0 technology awareness among ICT teachers. *British Journal of Educational Technology*, *42*(5), E106-E109. doi:10.1111/j.1467-8535.2011.01208.x

Trafimow, D. (2009). The Theory of Reasoned Action: A case study of falsification in Psychology. *Theory & Psychology, 19*(4), 501-518. ISSN: 0959-3543,doi: 10.1177/0959354309336319. SAGE Publications

Ulrich, J., & Karvonen, M. (2011). Faculty instructional attitudes, interest, and intention: Predictors of Web 2.0 use in online courses. *The Internet and Higher Education*, *14*(4), 207-216.

Veen, W. (1993) How Teachers Use Computers in Instructional Practice: four case studies in a Dutch secondary school, *Computers and Education*, *21*(1/2), pp. 1-8.

Venkatesh, V., Morris, M., Davis, G. and Davis, F.(2003).User acceptance of information technology: Toward a unified view. *MISQuarterly 27*(3), 425-478

Waycott, J., Gray, K., Clerehan, R., Hamilton, M., Richardson, J., Sheard, J., Thompson, C. (2010). Implications for academic integrity of using Web 2.0 for teaching, learning and assessment in higher education. *International Journal for Educational Integrity, 6(*2), 8-18.

Appendix A: The Questionnaire

Part A: Demographic Questions
Please provide the following demographic information:
Gender □ Male □ Female
Age in years?
Race/ Ethnicity
□ White / Caucasian
□ Black / African American
□ Hispanic
□ Asian / Pacific Islander
□ Arabic / Middle Eastern
□ Native American Indian
Are you full-time? □Yes □ No
Are you tenure-track? □Yes □ No
Rank □ Professor □ Associate professor
□ Assistant professor □ Instructor
□ Other ( )

Department
□ Education, General
□ Education, Other
□ Elementary and/or Early Education
□ Foreign Language Education
□ Middle School and/ or Junior High Education
□ Science Education
□ Math Education
□ Special Education
□ Secondary Education and/ or adolescent and young adult
□ Other ( )

Part B.1: Knowledge and experience

Please select the answer that best reflects your **personal use** of each Web application. If you use other Web applications please add them and include how often you use them.

Web applications	Always	Usually	Sometimes	Seldom	Never
Collaborating Applications (e.g. Wiki, ThinkQuest, and Mindmap)					
Personal Publishing platform (e.g. Blog and WordPress)					
Video, audio and photo sharing (e.g. YouTube, Podcast and Flickers)					
Social media sites (e.g. Facebook and Twitter)					
Web-based office (e.g. Google Calendar and Google Documents)					
Digital cloud storage (icloud, Google drive, or Dropbox)					
Video conference (e.g. Skype and Adobe Connect Pro)					
Open source course management system (e.g. Moodle and Drupal)					

B.2: Current use of Web application in teaching

Please select the answer that best reflects the use of each Web application in **your teaching.** If you use other applications of the Web, please add them and include how often you use them.

Web Applications	Always	Usually	Sometimes	Seldom	Never
Collaborating Applications (e.g. Wiki, ThinkQuest, and Mindmap)					
Personal Publishing platform (e.g. Blog and WordPress)					
Video, audio and photo sharing (e.g. YouTube, Podcast and Flickers)					
Social media sites (e.g. Facebook and Twitter)					
Web-based office (e.g. Google Calendar and Google Documents)					
Digital cloud storage (icloud, Google drive, or Dropbox)					
Video conference (e.g. Skype and Adobe Connect Pro)					
Open source course management system (e.g. Moodle and Drupal)					

B.3: Intention to use Web application in teaching
In the future, I (intend / will continue) to use the following Web applications. If you intend to use other applications of the Web, please add them and include how often you would like to use them.

	Always	Usually	Sometimes	Seldom	Never
Collaborating Applications (e.g. Wiki, ThinkQuest, and Mindmap)					
Personal Publishing platform (e.g. Blog and WordPress)					
Video, audio and photo sharing (e.g. YouTube, Podcast and Flickers)					
Social media sites (e.g. Facebook and Twitter)					
Web-based office (e.g. Google Calendar and Google Documents)					
Digital cloud storage (icloud, Google drive, or Dropbox)					
Video conference (e.g. Skype and Adobe Connect Pro)					
Open source course management system (e.g. Moodle and Drupal)					

Part C: Factors that influence the use of Web application in teaching
Please select the response that best reflects your position toward the following items about using Web application in education. (SA means Strongly Agree; A means Agree; D means Disagree; and SD means Strongly Disagree).

		Items	SA	A	D	SD
Perceived usefulness	1	I believe using Web applications in my teaching will enhance my students' learning.				
	2	I believe incorporating Web applications in my teaching will help me improve my technical skills.				
	3	I believe using Web applications in my classroom will facilitate learning.				
	4	I believe using Web applications in my classroom will motivate my students to learn.				
	5	I believe using Web in my classroom is useful for my students.				
	6	I believe using Web in my classroom is useful for me.				
Perceived ease-of-use	7	I believe that I can easily use Web applications in my classroom.				
	8	I believe that my students can use Web applications easily.				
	9	I believe that there are many ways to incorporate Web tools in the learning activities in my classroom.				
	10	I believe that Web applications require advanced technical skills to be used easily.(N)				
	11	I believe I need training on using Web applications in my classroom.(N)				
	12	I believe that I can easily implement Web applications in my classroom in a pedagogical manner.				
Perceived risk	13	I believe using Web applications in my classroom will raise the concern of exposing the students' information to the public.				
	14	I believe when using Web applications for assignments, students might misuse their peers' contributions.				
	15	I believe that when using Web applications in my classroom, some students might gain access to their peers' private information by watching them typing their passwords.				
	16	I believe using Web applications in my classroom will increase my workload.				
	17	I believe it is difficult to assess students' learning when using Web applications for learning activities.				
Colleagues' influence	18	I believe that some of my colleagues are using Web applications in their teaching.				
	19	I believe my colleagues are skilled in using Web applications.				

	20	I believe that some of my colleagues are using Web applications for personal uses.				
	21	I believe that my colleagues will in the future use Web applications in their classrooms.				
	22	I believe that my colleagues expect me to use Web applications in my classroom.				
	23	I believe that my colleagues would think that using Web applications in my classroom is useful.				
	24	I believe that my colleagues would think that it is easy to use Web applications in my classroom.				
Perceived pedagogical support	25	I believe that the use of Web applications in my classroom will help my students to construct their learning.				
	26	I believe that the use of Web applications in my classroom will support learner-centered learning.				
	27	I believe that the use of Web applications in my classroom will help me to apply collaborative learning.				
	28	I believe that the use of Web applications in my classroom will help my students develop high-order thinking skills.				
	29	I believe that the use of Web applications in my classroom will allow students to create the content of their learning.				
	30	I believe that the use of Web applications in my classroom will place my students in the center of the learning process.				
	31	I believe that the use of Web applications in my classroom will give my students an active role in constructing their learning.				

Part D: Comments

How would you describe your teaching philosophy?

.....

Please provide any comments in regard to the use of Web applications in your teaching.

.....