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The Perception of Web 2.0 Technologies on Teaching and Learning in Higher Education: A Case Study

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The purpose of this study was to examine faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods in programs at a higher education institutions to establish if relationships prevailed in their delivery of courses through the use of Web 2.0 technologies compared with traditional classroom delivery of courses; their overall satisfaction; the level of faculty development programs available; and their perceived effectiveness and impact of faculty development and issues and barriers affecting technology integration. This study also examined the influence of gender, age, and employment status on faculty members' perceptions of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods. This study used a nonexperimental, quantitative descriptive research design to investigate faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods. Participants for this study included full-time and part-time faculty members teaching at a public university in the United States. The results indicated that there is a relationship between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus traditional classroom method; there is a relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses; and there was a relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses.

Keywords: Web 2.0 Technologies; Higher Education; Blogs; Facebook; Podcast; Second Life; Skype; Twitter; Wiki; YouTube

Introduction

There are a number of institutions that influence information technology innovation, including government authorities, international agencies, professional and trade and industry associations, research-oriented higher education institutions, trend-setting corporations, multinational corporations, financial institutions, labor organizations, and religious institutions (King et al., 1994). Institutions of higher education, being one of the institutions that have influenced information technology innovation, have gone through a dramatic change over the past several years (Sibbet, 1997).

In today's economy, organizations must constantly produce at the highest human and technological levels in order to remain competitive (Fillion, Limayem, Laferrière, & Mantha, 2006). Schools, colleges, and universities are increasingly turning their traditional classrooms into digitized technology rooms (Weyant & Gardner, 2010) and it is becoming a "a transition from academic broadcasting to collaborative facilitation, from linear to student-directed teaching delivery" (Barnatt, 2008: p. 47). From blogs to virtual worlds, and wikis to interactive technology, students are now learning through a number of new channels, and it is up to the faculty members to infuse this technology into their curriculums (Chuang, 2004). With technology doubling every 18 months (Sibbet, 1997), just keeping up with it can be a daunting task in itself, let alone trying to figure out how best to leverage information technology into an organization. Robey and Boudreau (1999) state that "each new generation of technology and each major technological advance has been accompanied by energetic claims that organizations as we know them will be radically and fundamentally altered" (p. 167).

In order for faculty members to remain competitive and sustainable in this digital age, professional development on the use of technology and how to infuse technology into course curricula is a requirement (Alsaady, 2007). In higher education, as the significance on technology increases, so does the requirement for technologically educated faculty members (Chuang, 2004). Chuang posits that "the major concerns in educational technology have moved away from hardware- and software-related issues; instructional strategies, professional development, and continuity of administrative support have emerged as the new issues" (2004: p. 1). Hemmi, Bayne, and Land (2009) argue that "the technology infrastructure of 'Web 2.0' and its associated applications provide the higher education community with authoring and community-building capabilities, the pedagogical implications of which are still largely unexplored" (p. 19). Identifying the aspects of effectiveness and potential

impacts of faculty development will recognize areas of success and failure and will contribute to improving the content of faculty development (Al-Washahi, 2007). The results are expected to empower the faculty members to actively infuse technology into their curriculum and classroom, thus providing a state of the art experience for the student community at institutions of higher education.

Institutions of higher education are now playing to catch up because the students already have more knowledge about content sharing and Web 2.0 technologies than their professors do (Barnatt, 2008). The traditional college students, aged 18 - 25 years old, grew up in the digital world of computers are used to this technology (Weyant & Gardner, 2010). In order to get the faculty members up to speed on these technologies so they are not only knowledgeable of the technology, but able to infuse the technology into their curriculums, and faculty development programs are critical. Rich (2008) proposes the following five competencies that faculty members (as well as students) must acquire in order to take full advantage of the various Web 2.0 technologies. These competencies include accurate searching skills through a variety of search tools, judging authoritativeness to be able to acknowledge bias and appropriate use of citing materials, use of a range of channels to harmonize information, structural understanding of how Web 2.0 content is formed, and positive engagement (Rich, 2008).

Background of the Study

For the past thirty years, information technologies have revolutionized the way faculty members teach and students learn (Weyant & Gardner, 2010). In today's economy institutions of higher education must constantly produce at the human and technological levels in order to remain competitive (Fillion et al., 2006). With mainframe computers introduced in 1967, handheld digital calculators in 1970, personal computers in 1977, the Internet and Microsoft in 1995, and the extranet in 1998 (Sibbet, 1997) technology has been on the rise for over 42 years and there does not appear to be a hiccup or stop in sight. "In some schools, the Internet and other technologies are being integrated at the institutional level" (Gottwald, 2005: p. 2).

What used to be one-way communication and learning has quickly become an interactive platform for communication and learning. "Since the earliest use of the World Wide Web for teaching and learning, one of the most powerful elements has been the ability to engage learners in an interactive format" (Hazari, North, & Moreland, 2009: p. 187). The United States Department of Education established a project in 1998 to advocate the effective infusion of technology into teacher education (Thompson, 2005). This project was established 21 years after the personal computer was introduced, and a mere three years after the Internet was introduced (Sibbet, 1997).

This is not surprising as the Internet has become the world's most widespread unrestricted communication system (Laudon & Laudon, 2009: p. 200). "Increased attention to student engagement and active learning strategies have become particularly relevant in today's classroom environments" (Williams & Chinn, 2009: p. 165). In 2000, the use of technology in instruction was ranked as the second most significant issue confronting public education; by 2020 is it expected to be the most significant issue to confront public education (Hikmet, Taylor, & Davis, 2008). This development is an innovation in higher education. How faculty members are integrating Web 2.0 technologies into their curriculums and what specific Web 2.0 technologies are actually being integrated can lay the foundation to what tomorrow will bring for education, the faculty and the students. Thompson (2005) states that "teacher education must be a strong force to promote appropriate use of technology to support educational renewal and to prepare a skilled work force for our Information Society" (p. 331).

With technology continuing to expand at a rapid rate and being ever changing (Rockart, Earl, & Ross, 1996), trying to constantly be on the cutting edge of technology in higher education is an interesting paradigm. "In some schools, the Internet and other technologies are being integrated at the institutional level; with a student's complete academic experience—from application through registration and tuition payment, to final examination and course grade-occurring on-line" (Gottwald, 2005: p. 2). The rapidly growing technology infrastructure at institutions of higher education to meet the instructional and research needs of faculty, staff, and students (Alsaady, 2007) is making faculty development with the use of technology a requirement. Between 2002 and 2006, online learning increased by 21.5% while the entire higher education student body only increased by 1.5% (Yates, 2010).

Li and Pitts (2009) indicate that "one key area where Web-based technologies are predicted to have a significant impact is in their ability to transform the way in which professors and students are able to communicate and interact with one another" (p. 175). With the significant increase in online learning over the past years (Lee, 2010), this prediction is already a reality at institutions of higher education. Rich (2008) states that "members of the millennial generation are acquiring the sort of adult information navigation skills in an environment where folksonomies are widely used, and this potentially raises challenges for educators in universities as to how to promote information literacy" (p. 73). The reality is that the millennial generation, those born between 1982 and 2000, grew up with this technology so the faculty members are at a clear disadvantage (Barnatt, 2088). The role of the professor has gone from that of a broadcaster to a collaborative facilitator, and the learning delivery has gone from linear to student directed (Barnatt, 2008). The needs of the student population in institutions of higher education are rapidly evolving into the most technological advanced generation and if institutions and faculty members want to remain competitive must infuse technology with curriculums and continuously improve the technological offerings.

There are many factors that present challenges in evaluating the effectiveness of web technologies, including emotions (Gilmore & Warren, 2007), teachers' attitudes toward information technology (Grainger & Tolhurst, 2005), plagiarism (Harris & Rea, 2009), students' perception of information technology (Hikmet et al., 2008), motivation and group interaction (Hazari et al., 2009), students' different styles and expectations (Williams & Chinn, 2009), students' physical distance, their lack of direct responses, and the lack of restrictions over assessments (Halawi, Pires, & McCarthy, 2009). "There is a need to take stock of information and communications technologies investments in schools to assess whether they have been effective, rather than the results of well-intentioned administrators' jumping onto the information and communication technologies bandwagon" (Hikmet et al., 2008: p. 128). There are also many factors that present challenges in faculty sustainability, including faculty development programs (Alsaady, 2007; Baasandorj, 2010; Yates, 2010); issues and barriers (Chuang, 2004); perceptions

of onsite versus online teaching (Fillion et al., 2006); perceptions (Sahin & Thompson, 2006); and constructs that affect online teaching (Velez, 2010).

Statement of the Problem

The problem with advanced technological utilization by faculty in higher education is that higher education institutions are installing state of the art technology into classrooms and faculty members are expected to infuse this technology into their teaching, but only about 20% of faculty members feel that they are prepared to comply (Chuang, 2004). Internet usage among 18 - 29 years old college students is at a staggering 93% and "44% of the nearly 53 million Internet users produce and share digital content online" (Weyant & Gardner, 2010: p. 68). Not only are these college students ahead of the faculty when it comes to technical skills and utilization, but the organizations that are waiting for these students to graduate so they can employ them are expecting familiarity of Web 2.0 technologies (Weyant & Gardner, 2010).

Purpose of the Study

The purpose of this study was to examine faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods in programs at a higher education institutions to establish if relationships prevailed in their delivery of courses through the use of Web 2.0 technologies compared with traditional classroom delivery of courses: their overall satisfaction, the level of faculty development programs available, and their perceived effectiveness and impact of faculty development and issues and barriers affecting technology integration. This study also examined the influence of gender, age, and employment status on faculty members' perceptions of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods.

Research Questions

The primary research question for this study was:

To what extent do faculty members teaching college courses utilizing Web 2.0 technologies perceive that this method is a practical alternative to the traditional classroom method?

The following secondary questions were asked to support the primary research question stated above:

Question 2: To what extent do faculty members perceive that there is an adequate level of development programs available to create their course content utilizing Web 2.0 technologies?

Question 3: To what extent do faculty members perceive that the faculty development programs affecting technology integration are effective?

Question 4: To what extent do faculty members perceive that the impact of the barriers affecting technology integration is hindering their ability to utilize Web 2.0 technologies?

Question 5: Is there a difference in male and female faculty members' perceptions regarding their use of Web 2.0 technologies in their courses?

Question 6: Is there a difference in faculty members' perceptions regarding their use of Web 2.0 technologies in their courses respective to their age?

Question 7: Is there a difference in faculty members' perceptions regarding their use of Web 2.0 technologies in their courses respective to their employment status?

Significance of the Study

With technology continuing to expand at a rapid rate and being ever changing (Rockart et al., 1996), just keeping up with it can be a daunting task in itself. "In some schools, the Internet and other technologies are being integrated at the institutional level; with a student's complete academic experience—from application through registration and tuition payment, to final examination and course grade-occurring on-line" (Gottwald, 2005: p. 2). The rapidly growing technology infrastructure at institutions of higher education to meet the instructional and research needs of faculty, staff, and students (Alsaady, 2007) is making faculty development with the use of technology a requirement. Between 2002 and 2006, online learning increased by 21.5% while the entire higher education student body only increased by 1.5% (Yates, 2010). These are pretty alarming statistics and with Web 3.0 moving fast upon us, institutions of higher education need to put improving teaching and learning through the use of Web 2.0 technologies as a priority in their strategic plans so faculty members can learn not only how to use Web 2.0 technologies, but how to successfully infuse Web 2.0 technologies into their curriculums to improve learning.

In order for faculty members' to remain competitive and sustainable in this digital age, professional development on the use of technology and how to infuse technology into course curricula is a requirement. Identifying the aspects of effectiveness and potential impacts of faculty development will recognize areas of success and failure and will contribute to improving the content of faculty development (Al-Washahi, 2007). The results are expected to empower the faculty members to actively infuse technology into their curriculum and classroom, thus providing a state of the art experience for the student community at institutions of higher education.

Li and Pitts (2009) state that "the use of Web-based learning technologies has increased dramatically over the past decade providing new opportunities and avenues for students to interact with their professors virtually using computer-mediated communication technologies" (p. 175). An increasing number of institutions on higher education are relying on Web 2.0 technologies for teaching and learning purposes. Barnett (2008) cautions, however, that "beyond the use of new online tools by individual academics, an adoption of the philosophies, stakeholder expectations and development concepts of Web/HE 2.0 is likely to prove far more difficult for HE institutions at a strategic level" (p. 50).

It is often the case that institutions of higher education are incorporating state of the art technology into every teaching and learning facility on campus and online, but it may also be the case that the faculty members are not fully integrating the technology into their curriculums. From the students' perspective, the millennial generation grew up with technology. Lee (2010) states that "technology has had the most dramatic influence on the youngest members of society, also known as the millennial generation" (p. 3). The needs of the student population in institutions of higher education are rapidly evolving into the most technological advanced generation and if institutions and faculty members want to remain competitive must infuse technology with curriculums and continuously improve the technological offerings. Barrett (2008) posits that "higher edu-

cation in particular is hence playing catch-up, as those it seeks to educate increasingly arrive with the content sharing and service skills that those teaching them and managing that teaching have often not yet fully understood" (p. 48).

Definition of Terms

Avatar

An *avatar* "is a three dimensional cartoon character that interacts with other objects and avatars in Second Life" (Lee, 2010: p. 19). An avatar is a virtual representation of the person creating it.

Blogs

A *blog* is similar to an online diary. It is a webpage "consisting of brief paragraphs of opinion, information, personal diary entries, or links, called *posts*, arranged chronologically with the most recent first, in the style of an online journal" (Anderson, 2007: p. 7).

Facebook

Facebook, initially created for college student synergy, is an online network that allows people to have personal page and grants them the ability to stay in touch with other people (Fuller, 2011).The personal page includes personal information, photos, videos, text, and a 'wall' for friends to post information on (McCarthy, 2010). As a user, you can add friends, create groups and events (that you can invite friends to), create networks which link the user to professional and higher education facebook sites.

Hybrid Courses

Hybrid is the term used to describe educational courses delivered through a mixture of traditional face-to-face and online teaching methods.

Online Courses

Online is the term used to describe educational courses delivered through the Internet.

Podcast

A *Podcast* is an audio or video file created for use on mp3 players or on a computer (Baker, Harrison, Thornton, & Yates, 2010).

Second Life

Second Life is a three-dimensional computerized environment where members can socialize, hold virtual meetings, or conduct transactions online (Wang & Braman, 2009). Second Life is the largest virtual world with 15 million registered accounts in 2008 (Harris & Rea, 2009).

Skype

Skype is a synchronous voice and video communication tool (Newman, 2007).

Traditional Face-to-Face Courses

Traditional face-to-face is the term used to describe educational courses delivered face-to-face in the classroom at the educational institution.

Twitter

Twitter is a free micro-blogging application that allows for quick exchanges of thoughts, ideas, and information, which are delivered as messages up to 140 characters each (Wankel, 2009).

Virtual Worlds

A *virtual world* is a "computer simulated environment that enables users to interact with each other without geographical confines" (Harris & Rea, 2009: p. 138). Real people are characterized by avatars (a virtual 'you') and meet, interact and exchange ideas with each other at virtual locations.

Web 2.0

Web 2.0 is a service "built using the building blocks of the technologies and open standards that underpin the Internet and the web" (Anderson, 2007: p. 7). These services include blogs, wikis, browsers with plugins, social networking, multimedia sharing, content syndication, podcasting and content tagging services (think of tagging a person in a photo to identify their name).

Wikis

Wikis are a "type of Web site that makes it easy for users to contribute and edit text content and graphics without any knowledge of Web page development or programming techniques" (Laudon & Laudon, 2009: p. 66). Wikipedia is one of the best (and biggest) examples of a Wiki.

YouTube

YouTube "is the most popular and widely accepted video sharing website on the Internet" (Lee, 2010: p. 23).

Web 2.0 Tools

Blogs

The Pew Internet and American Life Project reported in 2009 the usage of blogs in the following way: "32% of all American adults go online to read someone else's blog; 15% work on someone else's webpage or blog; and 11% create or work on their own online journal or blog" (Weyant & Gardner, 2010: p. 68). Faculty are infusing blogs into their course curriculums for a variety of purposes, including syllabi distribution, digital portfolios, collaborative writing, and discussion group assignments (Weyant & Gardner, 2010). Alexander (2008) argues that blogs are the "centerpiece" to the organization of Web 2.0 because "the simplicity of creating and updating blogs empowers readers to write, evoking the phrase *read/write Web*" (p. 152).

Facebook

Facebook, initially created in 2004 for college student interaction by Harvard college student Mark Zuckerberg (Fuller, 2011), became widely available one year later. In late 2007, Facebook started a fan page feature that permitted universities to post information under their university name on Facebook (Fuller, 2011), and "by January 2008, 420 universities were using the fan page feature" (p. 49). This means that any user of Facebook can become a fan of any or all of the universities featured on Facebook. For universities, this can be a huge marketing opportunity because "the current social networking platform of choice among students in higher education is Facebook" (Wankel, 2009: p. 252). Facebook statistics suggest that

there were 845,000,000 monthly active users at the end of December 2011, 483,000,000 daily active users on average in December 2011, more than 425,000,000 monthly active users who used Facebook mobile products in December 2011, and available in more than 70 languages (Facebook, 2012).

By utilizing Facebook, faculty members can use the same tool that the students are already using to do other collaboration for course collaboration rather than making them log on to a separate course collaboration tool or website (Lee, 2010). Wankel (2009) furthers this discussion by stating that:

The uses of Facebook by management instructors include the ability to provide an attractive interactive venue, such as a Facebook group, for students to post threaded discussions on course-related material and activities, as well as reply to other student posting creating the sort of interactivity expected by accreditation agencies, most particularly online courses (p. 252).

In 2009, a Facebook assessment was done at the University of Adelaide in Australia with a first year design elective course. In this 6-week program, 120 students including 27 international students were enrolled in the course and participated in the assessment that involved a blended environment of both online engagements and face-to-face engagements (McCarthy, 2010). "The 2009 study indicated that the blending of real and virtual environments increased peer interaction and academic engagement, two key factors in a positive first year experience" (McCarthy, 2009: p. 738). McCarthy also notes that the increased collaboration between resident and international students was one of the most gratifying features of the online learning environment with Facebook.

Podcast

Podcasting was originally designed for audio files through the use of the Apple iPod but was enhanced to include video files when the video enabled iPods appeared on the market (Baker et al., 2010). Podcasts can be downloaded and viewed through the use of any mp3 device or computer. "The basic elements required to initiate a Podcasting program consist of a personal computer, microphone, audio editing software (available at no charge from Audacity.com), web server and a website" (Baker et al., 2010: p. 9).

A study was conducted by Baker et al. (2010) with an aviation class at a university in Florida to assess the benefits of using podcasting in a class. The 29 students in the class had access to four different podcasts that were available through the course website. Each podcast was a summary of four subjects that previous students had difficulty in understanding. The 29 students were given a quiz made up of questions from the Federal Aviation Administration (FAA) question bank and the results were compared to the results from the previous year where students did not have access to podcasts. The results proved that there was no difference between the test scores from the students who did have access to the podcasts and from the students who did not have access to the podcasts.

Second Life

Second Life, a desktop virtual reality application, "is a three-dimensional (3D) electronic environment where members can socialize, hold virtual meetings, or conduct economic transactions" (Wang & Braman, 2009: p. 235). Second Life is an application that is downloaded to a person's computer in order to extract the three dimensional graphics (Lee, 2010). Second Life is composed of islands that can be purchased and owned by people; on each island, the owners can do anything their creative mind or budget allows (Lee, 2010). Two significant features of learning in Second Life are that students are "often more motivated and less distracted than when they are placed in a traditional classroom" (Lee, 2010: p. 36) and that "the simulations tend to be more relevant to student when learning about real world situations" (p. 36).

Skype

The most influential feature of Skype is the ability to provide synchronous video feed during calls (Newman, 2007). "Using Skype, students can contact an instructor for help anytime the instructor is logged on to his or her computer. With this synchronous form of communication in both audio and visual formats, instructors have the ability to talk with and see students anytime both parties are connected in the Skype application" (Newman, 2007: pp. 27-28). Based on a survey of 221 students, the addition of Skype did not have a significant effect on student perceptions of online communications, online learning, or online community (Newman, 2007). Newman (2007: p. 78) points out that "the majority of the students indicated their enthusiasm and willingness to use a synchronous communication tool, yet they optioned not to use it or did so very little"). This could have been due to the fact that students had to have microphones and speakers or headsets, so if they did not own these they considered it hassle to go check the equipment out and install it on the computer they were using (Newman, 2007).

Twitter

Twitter is being utilized by colleges and universities as a chat service with current and potential students and also to improve awareness of campus events (Fuller, 2011). It can also be utilized to allow of network of users to add to an unstructured collaboration of ideas, links and resources (Wankel, 2009). "In a large class section of perhaps hundreds of learners, tweeting enables an immense amount of interactivity, ideally enriching the session in which it occurs" (Wankel, 2009: p. 254). Professors at Marquette University in Wisconsin utilize Twitter to promote the development of listening and classroom community environment, information gathering, multi-tasking, writing skills, and attention skills and have reported an increase in communication with students with the use Twitter (Wenkel, 2009).

Wiki

Faculty are infusing wikis into their course curriculums for a variety of purposes, including collaborative writing, posting of class notes, project brainstorming, and as a course management system (Weyant & Gardner, 2010). "Wikis support the constructivist, collaborative learning models by engaging students in the learning process" (Weyant & Gardner, 2010: p. 70). The largest and most well-known wiki is Wikipedia (Nicolaou, 2009). Nicolaou (2009) posits that:

Wikipedia holds millions of articles in approximately 250 *languages with more than two million pages in English. There are currently more than* 75,000 *active contributors to Wikipedia articles, while tens of thousands of edits are made daily to enhance the knowledge help by this online encyclopedia* (p. 26).

YouTube

"YouTube provides colleges and universities a free mecha-

nism for sharing recruiting videos" (Fuller, 2011: p. 50). YouTube is the standard for video streaming on the Internet (Lee, 2010) and instructors can use this as a tool for students to upload the videos as homework assignments. Video streaming is also available via Facebook, and both can easily be done with today's smart phones.

Research Design

This study used a nonexperimental, quantitative descriptive research design to investigate faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods. Quantitative techniques, as stated by Swanson and Holton (2005), "are particularly strong at studying large groups of people and making generalizations from the sample being studied to broader groups beyond that sample" (p. 30). This design was suitable for this research because the researcher had no control or influence over the variables. Cooper and Schindler (2008) posit that with nonexperimental researcher, "the researcher is limited to holding factors constant by judicious selection of subjects according to strict sampling procedures and by statistical manipulation of findings" (p. 143).

Sample

Participants for this study included full-time and part-time faculty members teaching at a public university in the United States, with the following selected attributes:

- Industry = Education;
- Job Function = Educator;
- Education Level = Graduate Degree;
- Employment = Employed Part Time, Employed Full Time;
- Age = 20 - 100+;
- Country = USA.

Of the 1207 respondents who were willing to participate in the survey, 988 or 81.9% of them were disqualified because they were not a part time or full time faculty member teaching in a public university in the United States and 18.1% or 219 of the respondents were eligible to participate in the survey based on the selected criteria noted above. Of the 219 surveys received, 41 surveys were deleted because of missing data. A total of 178 or 81.3% of the surveys were considered usable because the respondents participated in and actually completed the survey.

Setting

Zoomerang, an online survey service affiliated with the online survey tool SurveyMonkey, was the setting this study. Zoomerang allows researchers to select an online panel of participants based on particular attributes set by the researcher.

Instrumentation

The instrument that was utilized for this research was an online survey that was designed and created by the researcher. Advantages of an online survey include the unit cost of data collection is low, the possibility for high speed of returns, all of the benefits of a self-administered instrument can be realized, all of the benefits of a computer-assisted instrument can be realized, and they provide time for thoughtful answers (Fowler, 2009). The online survey was created through SurveyMonkey. SurveyMonkey, an online survey tool that has been available since 1999, was appropriate for this type of research as it allowed the researcher to create her own online survey using custom templates, the researcher obtained descriptive statistics on the results, and the results were downloaded into a database for additional data analysis (Creswell, 2009).

The survey was created following the five guiding principles of self-administered surveys: surveys should be self-explanatory, restricted to closed answers, the question forms should be few in number, laid out in a manner that is clear, and provide redundant information to make everything simple (Fowler, 2009). The survey was divided into three sections. The first section collected data on demographic information from the faculty members including age, gender, employment status, number of years working in higher education, how their courses are taught (face-to-face, hybrid, or online), and information on their work and personally owned computers. The second section of the survey listed current Web 2.0 technologies (Blogs, Facebook, Podcast, Second Life, Skype, Twitter, Wiki, YouTube) and the participant was asked to rate their proficiency level towards each technology on a 5-point Likert scale (1 = expert, 5 = proficient). The third section was a sequence of optimistic statements regarding faculty members' perceptions on whether or not teaching college courses utilizing Web 2.0 technologies was a practical alternative to the traditional classroom method. The participants were asked to match their level of agreement on a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree).

Data Collection

The data was collected via an online survey, created through SurveyMonkey. Once approval was received from the SurveyMonkey Project Management team, the survey launched and data collection automatically began. In order for respondents to be eligible to begin the survey, they must have the following attributes:

- Industry = Education;
- Job Function = Educator;
- Education Level = Graduate Degree;
- Employment = Employed Part Time, Employed Full Time;
- Age = 20 - 100+;
- Country = USA.

When respondents began the survey, the first page included the wording from the initial email to potential participants which explained the purpose of the research study, that they have been selected to participate in the research study, the procedures, and that their professional experience at their University will be invaluable to this particular research study. As the level of granularity on the available attribute selections within SurveyMonkey did not allow for ensuring that the participants were part time or full time faculty members employed at a public university in the United States, a screening question was included at the bottom of this page with skip logic that would automatically disqualify a respondent when their answer to the answer was no.

Respondents who answered yes to the question were sent to the next page which included the wording from the informed consent form. The consent form explained the benefits and risks, the voluntary participation, confidentiality statement, and provided contact information for the researcher if the participants had any further questions. If the respondent read and fully un-

derstood the consent form and agreed to voluntarily participate as a subject in the research, they were able to access the survey by simply clicking the button labeled next. Once each survey was submitted by the participant, it was automatically saved in the SurveyMonkey database. SurveyMonkey notified the researcher once the project received the number of expected responses and the project was labeled as complete by SurveyMonkey. No further action needed to be taken by the participants.

Results

Description of Participants

The description of participants was defined through Section 1 of the online survey which included 13 questions that became the independent scale variables and one qualifying question to determine the eligibility of the respondent which was also an independent scale variable. Of the 1207 respondents who were willing to participate in the survey, 988 or 81.9% of them were disqualified because they were not a part time or full time faculty member teaching in a public university in the United States and 18.1% or 219 of the respondents were eligible to participate in the survey based on the selected criteria noted above. Of the 219 surveys received, 42 surveys were deleted because of missing data. A total of 177 or 80.8% of the surveys were considered usable because the respondents participated in and actually completed the survey. These statistics are defined in **Table 1**.

Survey Question 1 asked the participants to select their gender. **Table 2** displays the results.

Of the 177 valid responses, more than half of the participants were male with 96 or 54.2% being male and 81 or 45.8% being female. Survey Question 2 asked the participant to select the category that includes their age. The results are displayed in **Table 3**.

The majority of the faculty members who participated in this research study were in the age range of 50 - 59 years old (25.4%) and 30 - 39 years old (25.4%); the minority of the faculty members who participated were in the age range of 70 years and older (5.1%) and between 20 - 29 years old (9.0%).

Table 1.
Frequency table—qualifying question to determine if participants are part time or full time faculty members teaching at a public university in the United States.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	219	18.1	18.1	18.1
	No	988	81.9	81.9	100.0
	Total	1207	100.0	100.0	

Table 2.
Frequency table—gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	96	8.0	54.2	54.2
	Female	81	6.7	45.8	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 3.
Frequency table—age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 29	16	1.3	9.0	9.0
	30 - 39	45	3.7	25.4	34.5
	40 - 49	28	2.3	15.8	50.3
	50 - 59	45	3.7	25.4	75.7
	60 - 69	34	2.8	19.2	94.9
	70+	9	.7	5.1	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Survey Question 3 asked the participants to select the number of years they have been teaching in higher education. The results can be found in **Table 4**.

The number of years that the faculty members have been teaching in higher education appeared on both ends of the spectrum with the majority of responses falling between 1 - 5 years (26.0%) or 21+ years (24.9%). The minority of responses fell between 16 - 20 years (12.4%). Survey Question 4 asked the participants to select the number of years they have been teaching at their University. The results can be seen in **Table 5**.

When the faculty members were asked how many years they had been teaching at their university, the majority of them (68 or 38.4%) had been teaching at their university for 1 - 5 years while 10 or 5.6% of the faculty members had been teaching at their university for 16 - 20 years. Survey Question 5 asked the participants to select their current employment status within the University. These results are indicated by **Table 6**.

Of the 177 faculty members who participated in the research study, almost half (86 or 48.6%) were adjuncts, while 37 or 20.9% were professors, 25 or 14.1% were assistant professors, and 24 or 13.6% were associate professors. The minority of the participants selected chairperson (3 or 1.7%), assistant dean (1 or .6%) or associate dean (1 or .6%).

Survey Question 6 asked the participants to select the level of courses they taught (undergraduate, graduate or both). The results can be found in **Table 7**.

The majority of the faculty members taught undergraduate courses (113 or 63.8%); 15 or 8.5% taught graduate courses; and 49 or 27.7% taught both undergraduate and graduate courses. Survey Question 7 asked the participants to select the method of teaching they utilize (traditional face-to-face, online, hybrid, or all of the above). The results are displayed in **Table 8**.

The majority of the participants (111 or 62.7%) taught traditional face-to-face courses, 16 or 9.0% taught online courses, 5 or 2.8% taught hybrid courses, and a quarter of the participants (45 or 25.4%) taught traditional face-to-face, online and hybrid courses. Survey Question 8 asked the participants to select their preferred method of teaching. The results can be found in **Table 9**.

The majority of the participants (114 or 64.4%) preferred to teach traditional face-to-face courses, 22 or 12.4% preferred to teach hybrid courses, 15 or 8.5% preferred to teach online, and 26 or 14.7% did not have a preference. Survey Question 9 asked the participants if they had a personal computer. **Table 10** displays the results.

Almost all of the faculty participants had a personal computer (172 or 97.2%) and 5 or 2.8% of the faculty members did

Table 4.
Frequency table—number of years teaching in higher education.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	46	3.8	26.0	26.0
	6-10	38	3.1	21.5	47.5
	11-15	27	2.2	15.3	62.7
	16-20	22	1.8	12.4	75.1
	21+	44	3.6	24.9	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 5.
Frequency table—number of years teaching at the university.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	68	5.6	38.4	38.4
	6-10	40	3.3	22.6	61.0
	11-15	30	2.5	16.9	78.0
	16-20	10	.8	5.6	83.6
	21+	29	2.4	16.4	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 6.
Frequency table—current employment status within the university.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adjunct	86	7.1	48.6	48.6
	Assistant Professor	25	2.1	14.1	62.7
	Associate Professor	24	2.0	13.6	76.3
	Professor	37	3.1	20.9	97.2
	Chairperson	3	.2	1.7	98.9
	Assistant Dean	1	.1	.6	99.4
	Associate Dean	1	.1	.6	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 7.
Frequency table—level of courses taught.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under graduate	113	9.4	63.8	63.8
	Graduate	15	1.2	8.5	72.3
	Both	49	4.1	27.7	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 8.
Frequency table—method of teaching courses.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Traditional face-to-face	111	9.2	62.7	62.7
	Online	16	1.3	9.0	71.8
	Hybrid	5	.4	2.8	74.6
	All of the above	45	3.7	25.4	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 9.
Frequency table—teaching method preference.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Traditional face-to-face	114	9.4	64.4	64.4
	Hybrid	22	1.8	12.4	76.8
	Online	15	1.2	8.5	85.3
	No preference	26	2.2	14.7	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 10.
Frequency table—personal home computer.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	172	14.3	97.2	97.2
	No	5	.4	2.8	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

not have a personal computer. Survey Question 10 asked the participants if they had a computer issued from the University. The results of this question are displayed in **Table 11**.

Based on the results from **Table 11**, over half of the faculty participants (95 or 53.7%) had a computer issued from the university, and 82 or 46.3% of the faculty members did not have a computer issued by the University. Survey Question 11 asked the participants how technically proficient they considered themselves to be. **Table 12** shows the results.

Based on the results from **Table 12**, 66 (37.3%) of the faculty members indicated that they were moderately proficient, 39 or 22% of the faculty members indicated that they were proficient and somewhat proficient, 29 or 16.4% indicated they were expert, and 4 or 2.3% indicated that they were not proficient. Survey Question 12 asked the participants to select how technically proficient they considered themselves to be when specifically talking about Web 2.0 technologies that their university offers. The results are reflected in **Table 13**.

Of the 177 responses, 55 or 31.1% of the faculty members rated themselves as somewhat proficient while 45 or 25.4% of the faculty members rated themselves as proficient. The difference between moderately proficient and proficient was only a matter of 7 faculty members, however, only 13 or 7.3% of the

Table 11.
Frequency table—university issued computer.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	95	7.9	53.7	53.7
	No	82	6.8	46.3	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 12.
Frequency table—technical proficiency level.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Proficient	4	.3	2.3	2.3
	Somewhat Proficient	39	3.2	22.0	24.3
	Proficient	39	3.2	22.0	46.3
	Moderately Proficient	66	5.5	37.3	83.6
	Expert	29	2.4	16.4	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 13.
Frequency table—technology proficiency level based on Web 2.0 technologies offered by the university.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Proficient	26	2.2	14.7	14.7
	Somewhat Proficient	55	4.6	31.1	45.8
	Proficient	45	3.7	25.4	71.2
	Moderately Proficient	38	3.1	21.5	92.7
	Expert	13	1.1	7.3	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

faculty members rated themselves as an expert. Survey Question 13 asked the participants to select their best method of learning. The results can be found in **Table 14**.

The majority of the faculty members, 103 or 58.2%, indicated that they learned best by doing, while 63 or 35.6% learned best by reading or watching. Only 11 or 6.2% of the faculty learned best by listening.

Description of Ordinal Variables

Sections 2 and 3 of the survey contain the dependent ordinal variables. Section 2 asked the faculty member to identify their current level of Web 2.0 technology use, from never to very often, at their university for instructional purposes. Survey Question 14 asked the participants to select their current level of utilizing Blogs for instructional purposes. The results are indicated in **Table 15**.

The majority of the faculty members have never utilized Blogs (75 or 42.4%), 40 or 22.5% sometimes utilized Blogs, 36 or 20.3% rarely utilized Blogs, 23 or 13.0% often utilized Blogs, and 3 or 1.7% very often utilized Blogs. Survey Question 15 asked the participants to select their current level of utilizing Facebook for instructional purposes. The results are indicated by **Table 16**.

Half of the faculty members (90 or 50.8%) never utilized Facebook for instructional purposes, while 28 of the faculty members have rarely utilized Facebook and 27 or 15.3% sometimes utilized Facebook. The minority of the faculty members have either often utilized Facebook (22 or 12.4%) or very often utilized Facebook (10 or 5.6%). Survey Question 16 asked the participants to select their utilization of Podcast for instructional purposes. The results of this question can be found in **Table 17**.

Table 14.
Frequency table—best method of learning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Reading or watching	63	5.2	35.6	35.6
	Listening	11	.9	6.2	41.8
	Doing	103	8.5	58.2	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 15.
Frequency table—Blogs utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	75	6.2	42.4	42.4
	Rarely	36	3.0	20.3	62.7
	Sometimes	40	3.3	22.6	85.3
	Often	23	1.9	13.0	98.3
	Very Often	3	.2	1.7	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 16.
Frequency table—Facebook utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	90	7.5	50.8	50.8
	Rarely	28	2.3	15.8	66.7
	Sometimes	27	2.2	15.3	81.9
	Often	22	1.8	12.4	94.4
	Very Often	10	.8	5.6	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 17.
Frequency table—Podcast utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	86	7.1	48.6	48.6
	Rarely	28	2.3	15.8	64.4
	Sometimes	43	3.6	24.3	88.7
	Often	15	1.2	8.5	97.2
	Very Often	5	.4	2.8	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

The majority of the faculty members (86 or 48.6%) have never utilized Podcast for instructional purposes, while 43 or 24.3% sometimes utilized Podcast, and 28 or 15.8% rarely utilized Podcast. Of the 177 participants, 15 or 8.5% often utilized Podcast and 5 or 2.8% very often utilized Podcast for instructional purposes. Survey Question 17 asked the participants how often they utilized Second Life for instructional purposes. The results of this question can be found in **Table 18**.

The majority of the participants (141 or 79.7%), have never utilized Second Life for instructional purposes, 15 or 8.5% of the participants have rarely utilized Second Life, 17 or 9.6% sometimes utilized Second Life and 4 or 2.3% often utilize Second Life. Survey Question 18 asked the participants how often they utilized Skype for instructional purposes. The results are indicated **Table 19**.

The majority of faculty members (91 or 51.4%) have never utilized Skype for instructional purposes, while 35 or 19.8% have rarely utilized Skype, 33 or 18.6% sometimes utilized Skype, 15 or 8.5% often utilize Skype, and 3 or 1.7% very often utilize Skype. Survey Question 19 asked the participants how often they utilized Twitter for instructional purposes. The results can be found in **Table 20**.

Table 18.
Frequency table—Second Life utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	141	11.7	79.7	79.7
	Rarely	15	1.2	8.5	88.1
	Sometimes	17	1.4	9.6	97.7
	Often	4	.3	2.3	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 19.
Frequency table—Skype utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	91	7.5	51.4	51.4
	Rarely	35	2.9	19.8	71.2
	Sometimes	33	2.7	18.6	89.8
	Often	15	1.2	8.5	98.3
	Very Often	3	.2	1.7	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 20.
Frequency table—Twitter utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	126	10.4	71.2	71.2
	Rarely	21	1.7	11.9	83.1
	Sometimes	18	1.5	10.2	93.2
	Often	10	.8	5.6	98.9
	Very Often	2	.2	1.1	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

The majority of the participants (126 or 71.2%) have never utilized Twitter for instructional purposes, while 21 or 11.9% rarely utilized Twitter, and 18 or 10.2% of the faculty members sometimes utilized Twitter. The minority of the participants (2 or 1.1%) very often utilizes Twitter, and 10 or 5.6% often utilize Twitter for instructional purposes. Survey Question 20 asked the participants how often they utilized Wikis for instructional purposes. The results can be found in **Table 21**.

Over half of the participants (92 or 52%) have never utilized Wikis for instructional purposes, while 34 or 19.2% rarely utilize Wikis and 35 or 19.8% sometimes utilize Wikis. Of the 177 tot participants, 12 or 6.8% indicated that they often utilize Wikis and 4 or 2.3% indicated that they very often utilize Wikis for instructional purposes. Survey Question 21 asked the participants how often they utilized YouTube for instructional purposes. The results can be found in **Table 22**.

The majority of the participants (71 or 40.1%) indicated that they sometimes utilize YouTube for instructional purposes, while 44 or 24.9% have rarely utilized YouTube and 27 or 15.3% have never utilized YouTube for instructional purposes. The minority of the participants (9 or 5.1%) indicated that they very often utilized YouTube and 25 or 14.7% indicated that they often utilize YouTube for instructional purposes. Descriptive statistics for the Web 2.0 technologies analyzed (Blogs, Facebook, Podcast, Second Life, Skype, Twitter, Wiki, and YouTube) can be found in **Table 23**.

In summary, **Table 23** shows that the Web 2.0 technologies that are utilized the least out of all of the participants were Second Life with a mean of 1.3446 and Twitter with a mean of 1.5367. The Web 2.0 technologies utilized the most out of all of the participants was YouTube with a mean of 2.6949 and Blogs with a mean of 2.1130.

Crosstablulation analyses were conducted to understand the impact of gender on the level of Web 2.0 technology utilization at the faculty members' university. **Figure 1** shows the impact of gender on the level of Blog utilization at their respective university.

Table 21.
Frequency table—Wiki utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	92	7.6	52.0	52.0
	Rarely	34	2.8	19.2	71.2
	Sometimes	35	2.9	19.8	91.0
	Often	12	1.0	6.8	97.7
	Very Often	4	.3	2.3	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 22.
Frequency table—YouTube utilization for instructional purposes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	27	2.2	15.3	15.3
	Rarely	44	3.6	24.9	40.1
	Sometimes	71	5.9	40.1	80.2
	Often	26	2.2	14.7	94.9
	Very Often	9	.7	5.1	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 23.
Descriptive statistics of Web 2.0 technologies.

	N	Minimum	Maximum	Mean	Std. Deviation
Blogs	177	1.00	5.00	2.1130	1.14748
Facebook	177	1.00	5.00	2.0621	1.29316
Podcast	177	1.00	5.00	2.0113	1.15300
Second Life	177	1.00	4.00	1.3446	.74612
Skype	177	1.00	5.00	1.8927	1.08962
Twitter	177	1.00	5.00	1.5367	.96534
Wiki	177	1.00	5.00	1.8814	1.08844
YouTube	177	1.00	5.00	2.6949	1.05939
Valid N (listwise)	177				

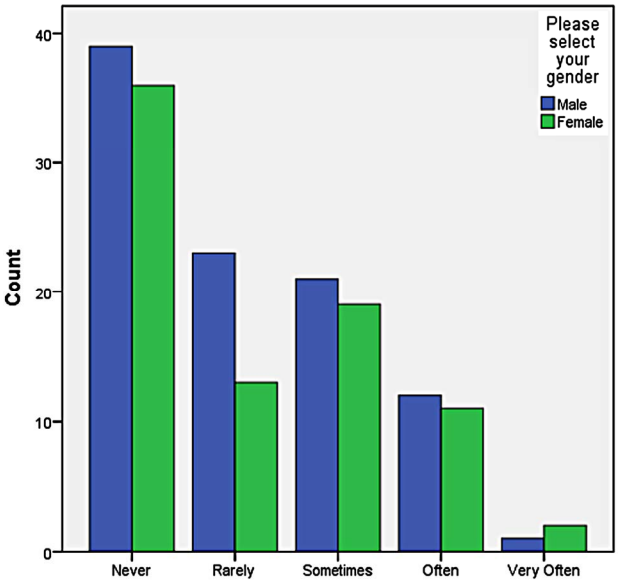

Figure 1.
Crosstabulation—Blog utilization for instructional purposes by gender.

Reviewing the results with highest count indicates that male faculty members had a higher count on the never utilizing Blog, rarely utilizing Blogs, sometimes utilizing Blogs, and often utilizing Blogs. Female faculty members had a higher count on very often utilizing Blogs for instructional purposes. **Figure 2** shows the impact of gender on the level of Facebook utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Facebook, rarely utilizing Facebook, and often utilizing Facebook for instructional purposes. Female faculty members had a higher count on sometimes utilizing Facebook, and very often utilizing Facebook for instructional purposes. **Figure 3** shows the impact of gender on the level of Podcast utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Podcast, rarely utilizing Podcast, sometimes utilizing Podcast, and very often utilizing Podcast for instructional purposes. Female faculty members had a higher count on often utilizing Podcast for instructional purposes. **Figure 4** shows the impact of gender on the level of Second Life utilization at their respective university.

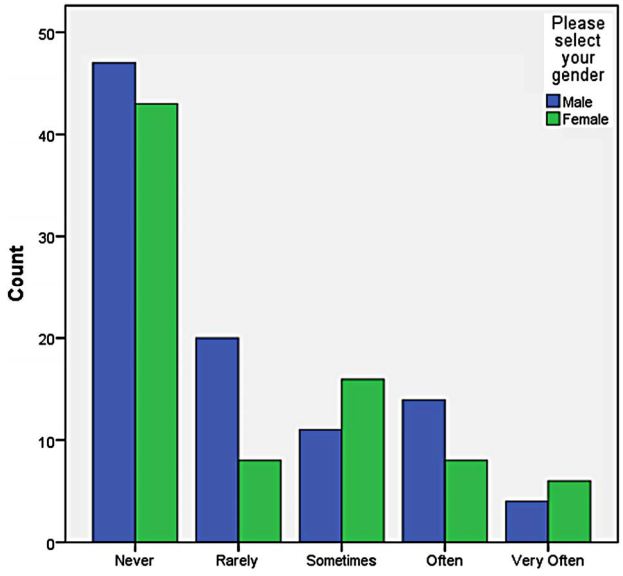

Figure 2.
Crosstabulation—Facebook utilization for instructional purposes by gender.

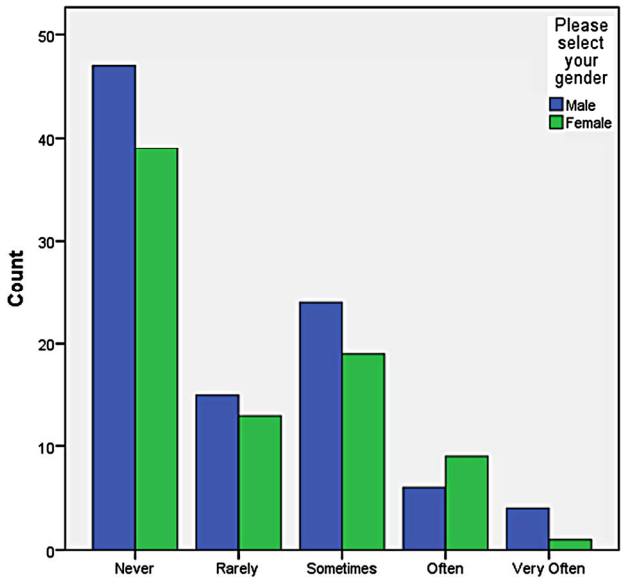

Figure 3.
Crosstabulation—Podcast utilization for instructional purposes by gender.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Second Life, rarely utilizing Second Life, sometimes utilizing Second Life, and often utilizing Second Life for instructional purposes. Neither male nor female faculty members measured on the chart as very often utilizing Second Life for instructional purposes. **Figure 5** shows the impact of gender on the level of Skype utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Skype, rarely utilizing Skype, often utilizing Skype, and very often utilizing Skype for instructional purposes. Female faculty members had a higher count on sometimes utilizing Skype for in-

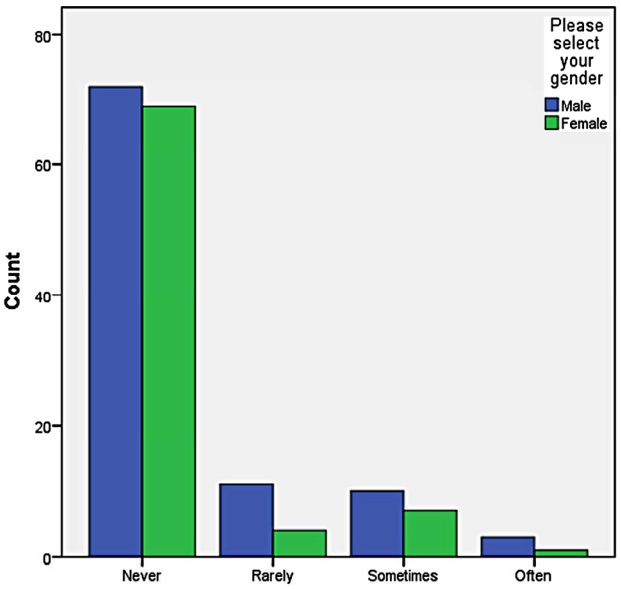

Figure 4.
Crosstabulation—Second Life utilization for instructional purposes by gender.

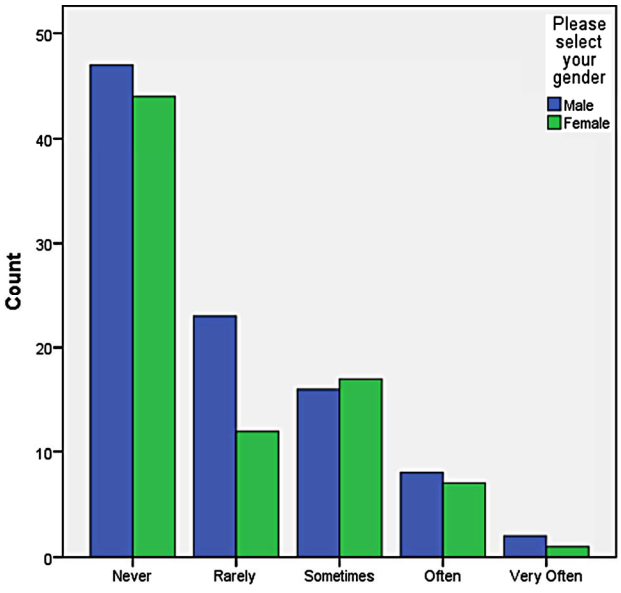

Figure 5.
Crosstabulation—Skype utilization for instructional purposes by gender.

structional purposes. **Figure 6** shows the impact of gender on the level of Twitter utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Twitter, sometimes utilizing Twitter, and often utilizing Twitter for instructional purposes. Female faculty members had a higher count on rarely utilizing Twitter, and very often utilizing Twitter for instructional purposes. **Figure 7** shows the impact of gender on the level of Wiki utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing Wikis, rarely utilizing Wikis, sometimes utilizing Wikis, and often utilizing Wikis for instructional purposes. Female faculty members were tied with male faculty members on the count for very often utilizing Wikis for instructional purposes. **Figure 8** shows the impact of gender on the level of YouTube utilization at their respective university.

Reviewing the results with highest count indicates that male faculty members had a higher count on never utilizing YouTube, rarely utilizing YouTube, and often utilizing YouTube for instructional purposes. Female faculty members had a higher count on sometimes utilizing YouTube and very often utilizing YouTube for instructional purposes.

Crosstablulation analyses were conducted to understand the impact of age on the level of Web 2.0 technology utilization at the faculty members' perspective university. **Figure 9** shows

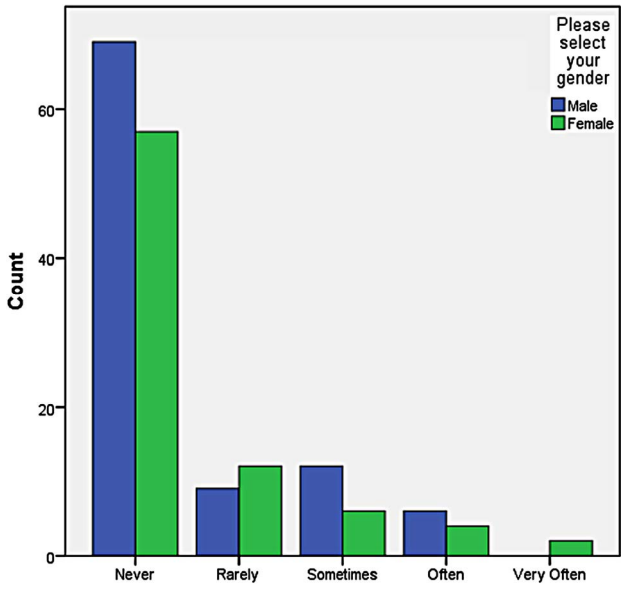

Figure 6.
Crosstabulation—Twitter utilization for instructional purposes by gender.

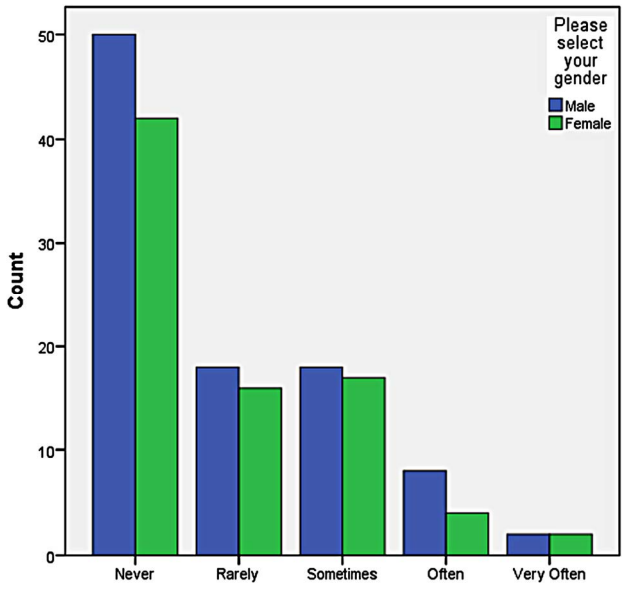

Figure 7.
Crosstabulation—Wiki utilization for instructional purposes by gender.

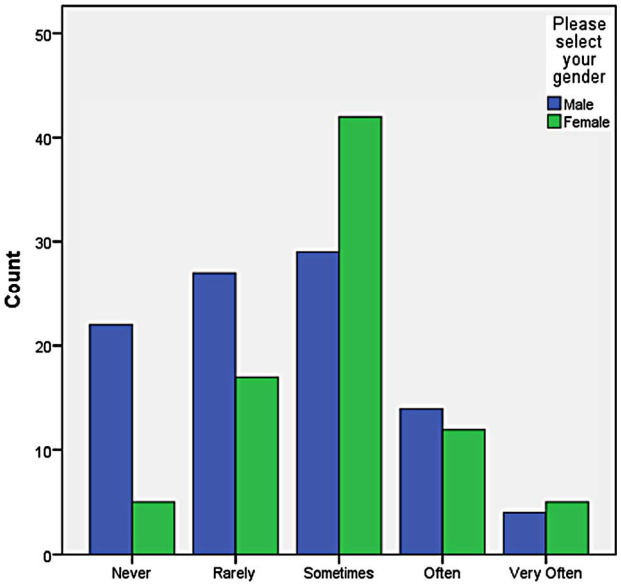

Figure 8.
Crosstabulation—YouTube utilization for instructional purposes by gender.

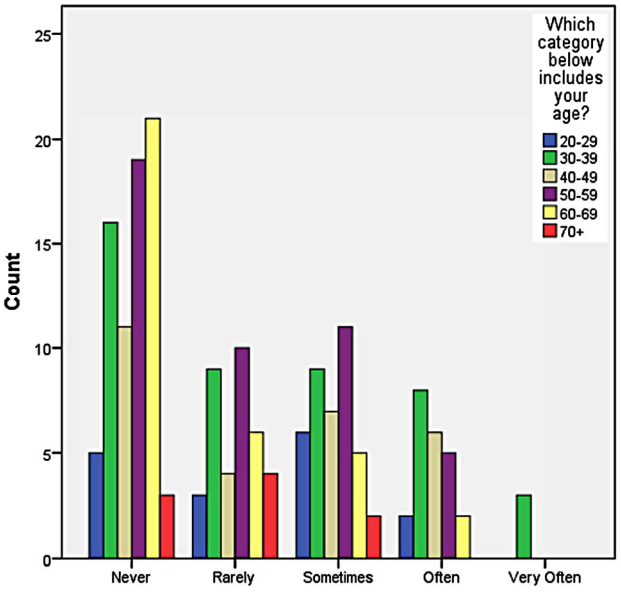

Figure 9.
Crosstabulation—Blog utilization for instructional purposes by age.

the impact of age on the level of Blog utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 60 - 69 have never utilized Blogs; participants in the age range of 50 - 59 have rarely utilized Blogs and sometimes utilized Blogs; participants in the age range of 30 - 39 often utilize Blogs and very often utilized Blogs for instructional purposes. **Figure 10** shows the impact of age on the level of Facebook utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 60 - 69 have never utilized Facebook; participants in the age range of 50 - 59 have rarely utilized Facebook; participants in the age range of 30 - 39 sometimes utilized Facebook and very often utilized Facebook for instructional purposes. Participants in the age range of 30 - 39 tied with participants in the age range of 40 - 49 who often utilize Facebook for instructional purposes. **Figure 11** shows the impact of age on the level of Podcast utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 50 - 59 have never utilized Podcasts and have very often utilized Podcast; participants in the age range of 30 - 39 sometimes utilized Podcasts; participants in the age range of 30 - 39 and 40 - 49 tied with the count of those who rarely utilized Podcast and often utilized Podcast for

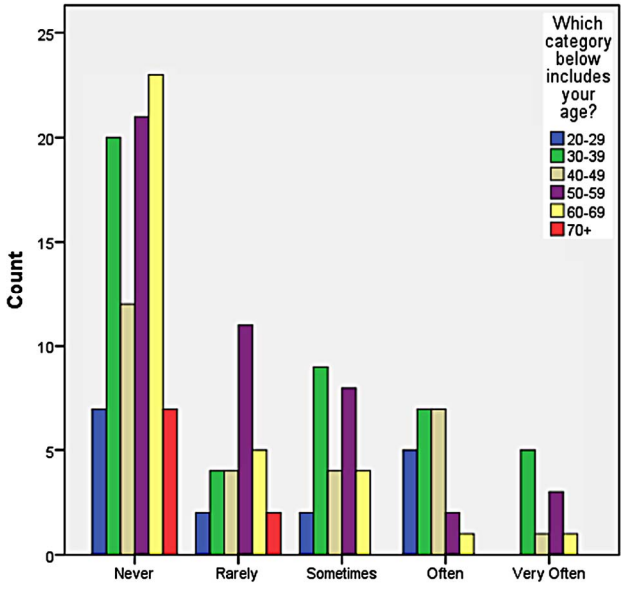

Figure 10.
Crosstabulation—Facebook utilization for instructional purposes by age.

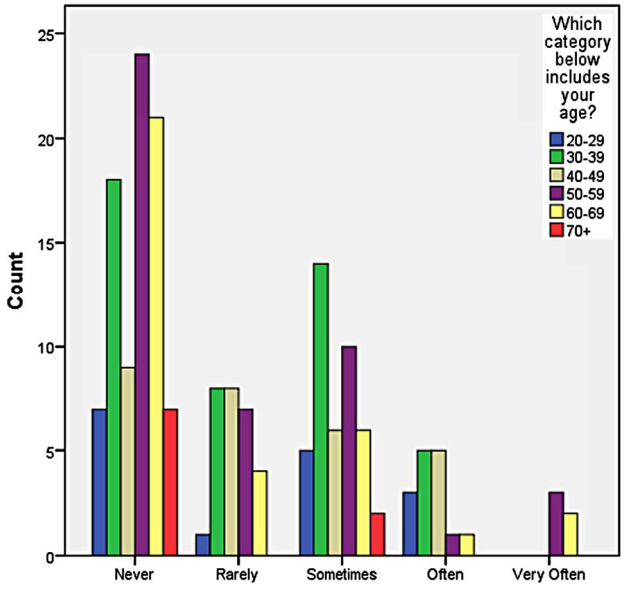

Figure 11.
Crosstabulation—Podcast utilization for instructional purposes by age.

instructional purposes. **Figure 12** shows the impact of age on the level of Second Life utilization at the faculty members' respective universities.

Reviewing the results with highest count indicates overall, participants in the age range of 50 - 59 have never utilized Second Life, and have rarely utilized Second Life; participants in the age range of 30 - 39 sometimes utilized Second Life; and participants in the age range of 20 - 29 have often utilized Second Life for instructional purposes. **Figure 13** shows the impact of age on the level of Skype utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 50 - 59 have never utilized Skype, and have rarely utilized Second Life; participants in the age range of 30 - 39 sometimes utilized Skype, often utilized Skype and very often utilized Skype for instructional purposes. **Figure 14** shows the impact of age on the level of Twitter utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 50 - 59 have never utilized Twitter; participants in the age range of 30 - 39 rarely utilized Twitter, sometimes utilized Twitter, and often utilized Twitter; participants in the age range of 40 - 49 and 50 - 59 tied with the count of those who very often utilized Twitter for instructional purposes. **Figure 15** shows the impact of age on the level of Wiki utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall,

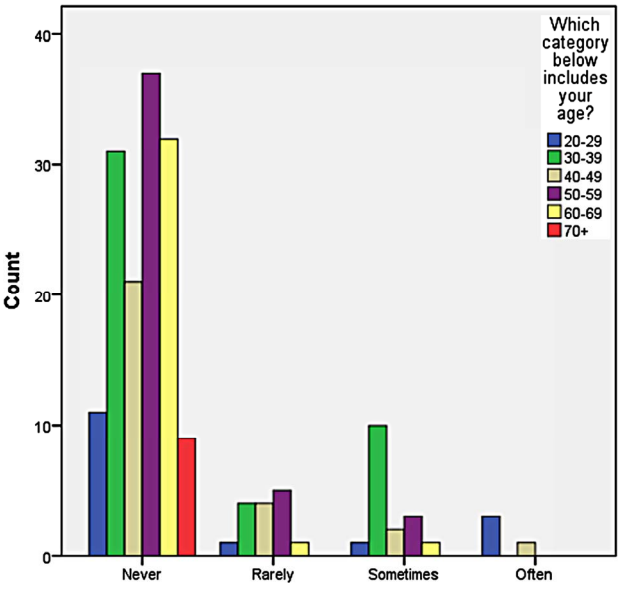

Figure 12.
Crosstabulation—Second Life utilization for instructional purposes by age.

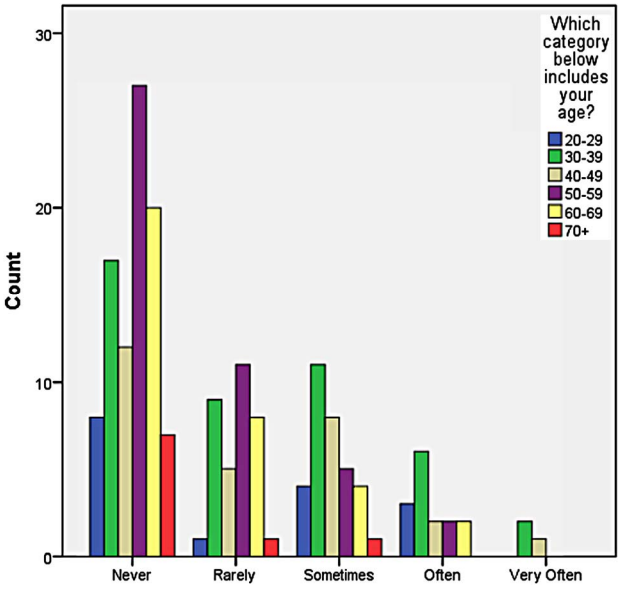

Figure 13.
Crosstabulation—Skype utilization for instructional purposes by age.

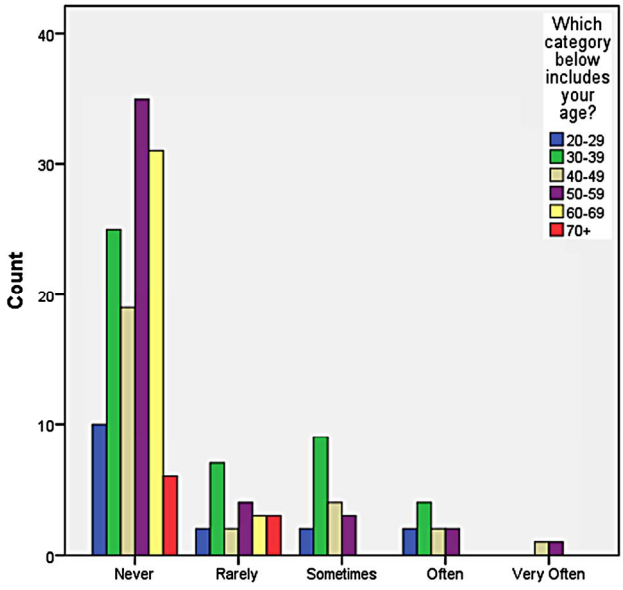

Figure 14.
Crosstabulation—Twitter utilization for instructional purposes by age.

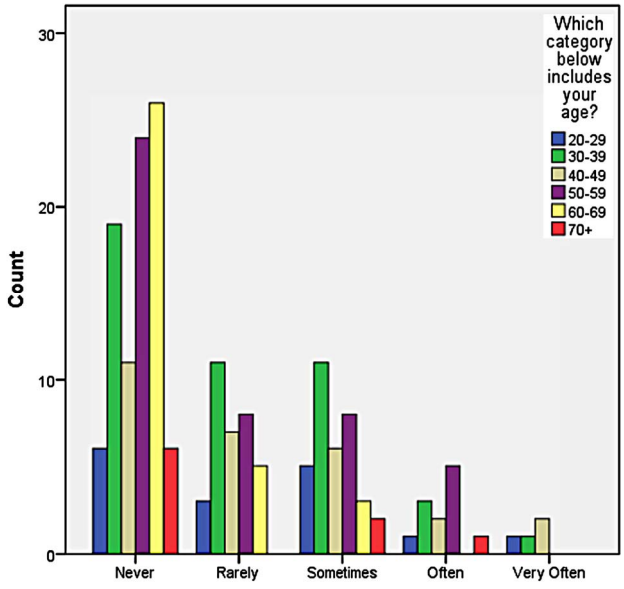

Figure 15.
Crosstabulation—Wiki utilization for instructional purposes by age.

participants in the age range of 60 - 69 have never utilized Wikis; participants in the age range of 30 - 39 rarely utilized Wikis and sometimes utilized Wikis; participants in the age range of 50 - 59 often utilized Wikis; and participants in the age range of 40 - 49 very often utilized Wikis for instructional purposes. **Figure 16** shows the impact of age on the level of YouTube utilization at the faculty members' respective university.

Reviewing the results with highest count indicates overall, participants in the age range of 50 - 59 have never utilized YouTube, and have rarely utilized YouTube; participants in the age range of 30 - 39 sometimes utilized YouTube, often utilized YouTube and very often utilized YouTube for instructional purposes.

Crosstablulation analyses were conducted to understand the impact of employment status on the level of Web 2.0 technology use at the faculty members' university. **Figure 17** shows the impact of employment status on the level of Blog utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Blogs, have rarely utilized Blogs, have sometimes utilized Blogs, and have very often utilized Blogs; participants whose employment status was professor often utilized Blogs for instructional purposes. **Figure 18** shows the impact of employment status on the level of Facebook utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Facebook, have rarely utilized Facebook, have sometimes utilized Facebook, have often utilized Facebook, and have very often utilized Facebook for instructional purposes. **Figure 19** shows the impact of employment status on the level of Podcast utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Podcasts, have rarely utilized Podcasts, and have sometimes utilized Podcast for instructional purposes. Participants

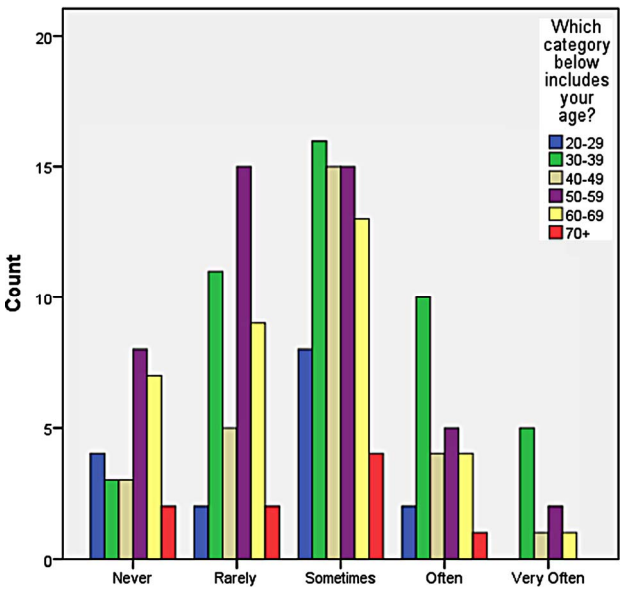

Figure 16.
Crosstabulation—YouTube utilization for instructional purposes by age.

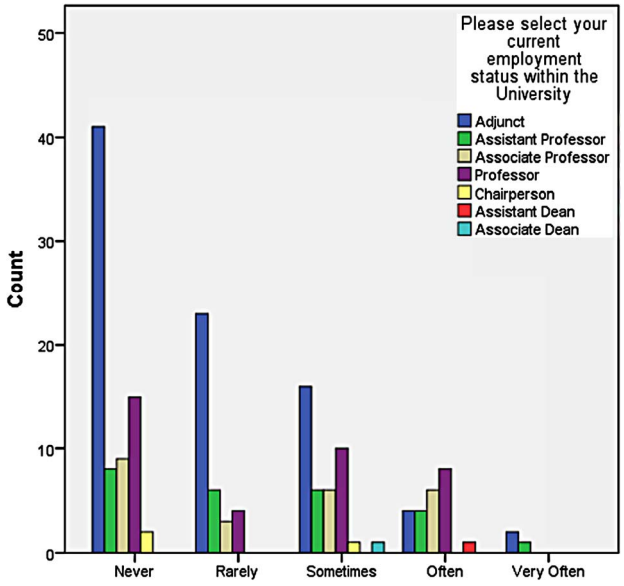

Figure 17.
Crosstabulation—Blog utilization for instructional purposes by employment status.

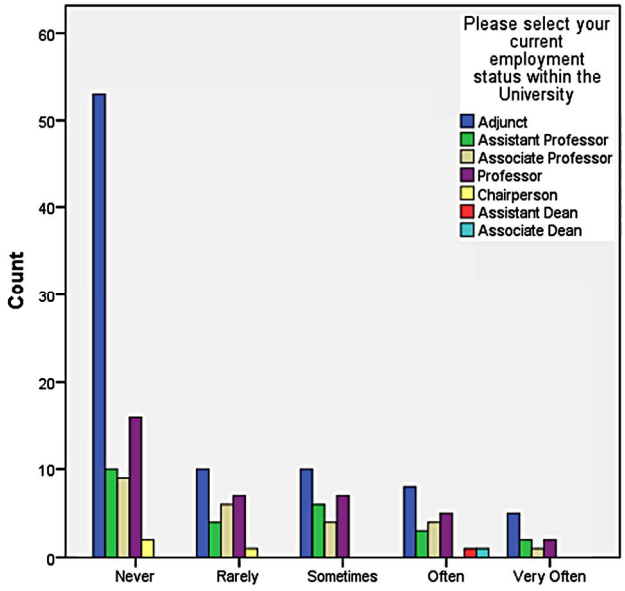

Figure 18.
Crosstabulation—Facebook utilization for instructional purposes by employment status.

whose employment status was assistant professor, associate professor and professor tied in the count for those who often utilized Podcasts; and participants whose employment status was assistant professor and professor tied in the count for those who very often utilized Podcasts for instructional purposes. **Figure 20** shows the impact of employment status on the level of Second Life utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Second Life, and have sometimes utilized Second Life for instructional purposes. Participants whose employment status

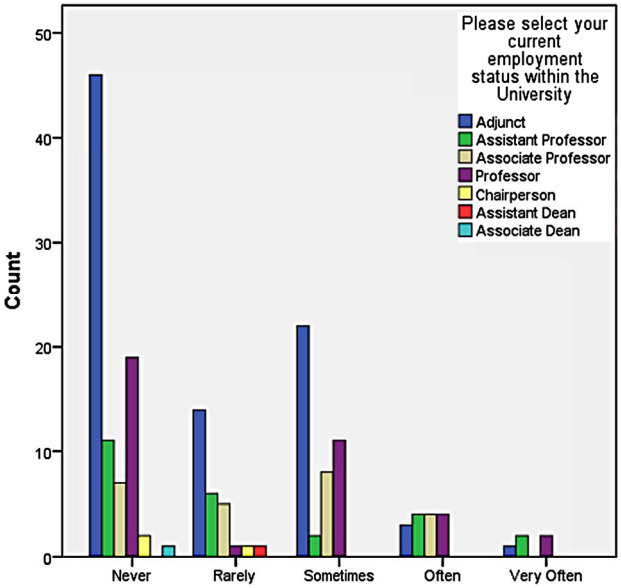

Figure 19.
Crosstabulation—Podcast utilization for instructional purposes by employment status.

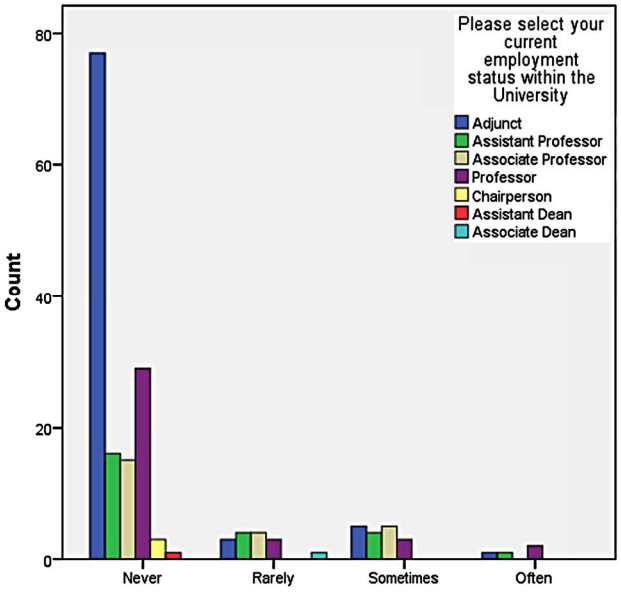

Figure 20.
Crosstabulation—Second Life utilization for instructional purposes by employment status.

was professor often utilized Second Life; participants whose employment status was assistant professor and associate professor tied in the count for those who rarely utilized Second Life; and participants whose employment status was adjunct and associate professor tied in the count for those who sometimes utilized Second Life for instructional purposes. **Figure 21** shows the impact of employment status on the level of Skype utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Skype, have rarely utilized Skype, have sometimes utilized Skype, and have very often utilized Skype for instructional purposes. Participants whose employment status was professor often utilized Skype for instructional purposes. **Figure 22** shows the impact of employment status on the level of Twitter utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Twitter, and have rarely utilized Twitter for instructional purposes. Participants whose employment status was professor have often utilized Twitter. Participants whose employment status was adjunct and associate professor tied for the count of those who sometimes utilized Twitter and very often utilized Twitter for instructional purposes. **Figure 23** shows the

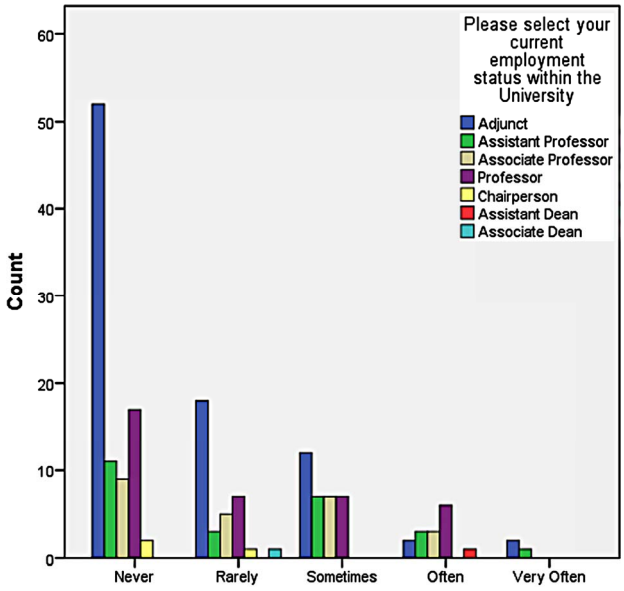

Figure 21.
Crosstabulation—Skype utilization for instructional purposes by employment status.

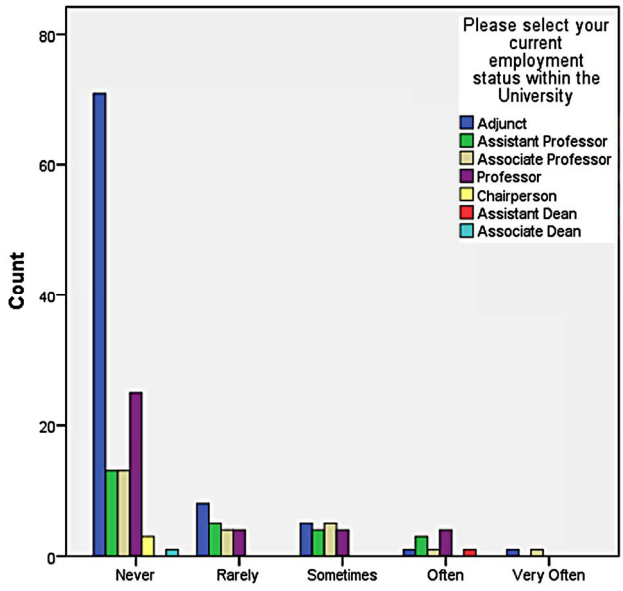

Figure 22.
Crosstabulation—Twitter utilization for instructional purposes by employment status.

impact of employment status on the level of Wiki utilization at faculty members' respective university.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized Wikis, have rarely utilized Wikis, and have often utilized Wikis for instructional purposes. Participants whose employment status was adjunct and tied for the count of those who sometimes utilized Wikis; and participants whose employment status was adjunct, assistant professor, associate professor, and professor tied for the count of those who very often utilized Wikis for instructional purposes. **Figure 24** shows the impact of employment status on the level of YouTube utilization at faculty members' respective university.

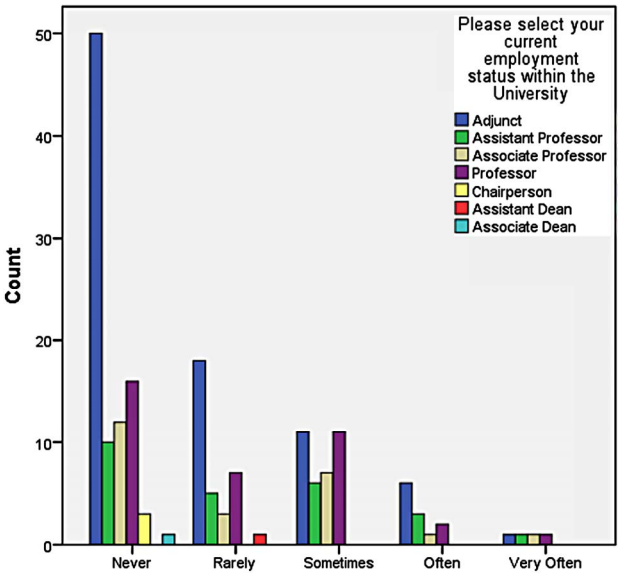

Figure 23.
Crosstabulation—Wiki utilization for instructional purposes by employment status.

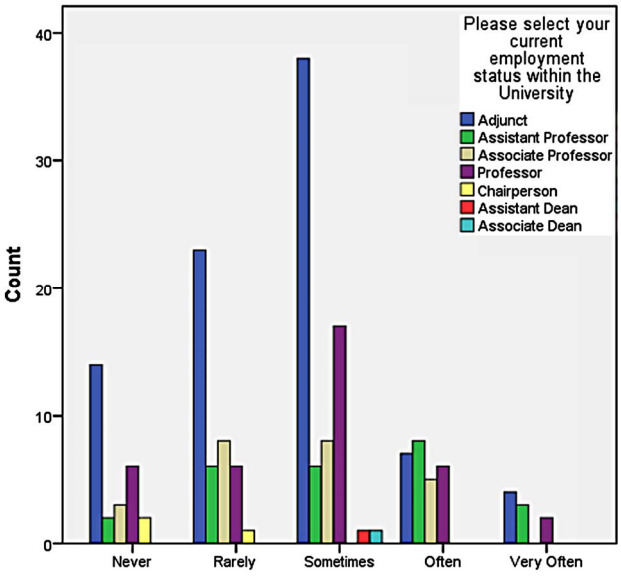

Figure 24.
Crosstabulation—YouTube utilization for instructional purposes by employment status.

Reviewing the results with highest count indicates overall, participants whose employment status was adjunct have never utilized YouTube, have rarely utilized YouTube, have sometimes utilized YouTube, and have very often utilized YouTube for instructional purposes. Participants whose employment status was assistant professor often utilized YouTube for instructional purposes.

Section 3 of the survey included 19 questions that asked the faculty members, by using a scale of strongly disagree to strongly agree, to identify which statements most closely matches their agreement with each statement. Survey Question 22 asked the participants if using Web 2.0 technologies improve the quality of teaching. **Table 24** shows the results.

The majority of the faculty members (82 or 46.3%) felt neutral about the utilization of Web 2.0 technologies improving the quality of teaching, while 65 or 36.7% of the faculty members agreed that using Web 2.0 technologies improves the quality of teaching. Of the 177 participants, 12 or 6.8% of the faculty members strongly agreed that using Web 2.0 technologies improves the quality of teaching. Survey Question 23 asked the participants if using Web 2.0 technologies enhances student's experience. The results of this question are in **Table 25**.

The majority of the faculty members (81 or 45.8%) agreed that using Web 2.0 technologies enhances student's experiences, while 65 or 36.7% of the faculty members remained neutral. Of the 177 participants, 15 or 8.5% of the faculty members strongly agreed that using Web 2.0 technologies enhances student's experience, and 11 or 6.2% disagreed with the statement. Survey Question 24 asked the participants if learning to use Web 2.0 technologies was easy for them. The results of this question can be found in **Table 26**.

Table 24.
Frequency table—using Web 2.0 technologies improves the quality of teaching.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	.6	4.0	Valid
	Disagree	11	.9	6.2	
	Neutral	82	6.8	46.3	
	Agree	65	5.4	36.7	
	Strongly Agree	12	1.0	6.8	
	Total	177	14.7	100.0	
Missing	System	1030	85.3		Missing
Total		1207	100.0		

Table 25.
Frequency table—using Web 2.0 technologies enhances student's experiences in the classroom.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	.4	2.8	2.8
	Disagree	11	.9	6.2	9.0
	Neutral	65	5.4	36.7	45.8
	Agree	81	6.7	45.8	91.5
	Strongly Agree	15	1.2	8.5	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 26.
Frequency table—learning to use Web 2.0 technologies is easy for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	.4	2.8	2.8
	Disagree	17	1.4	9.6	12.4
	Neutral	70	5.8	39.5	52.0
	Agree	67	5.6	37.9	89.8
	Strongly Agree	18	1.5	10.2	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

The majority of the faculty members (70 or 39.5%) remained neutral while 67 or 37.9% of the faculty agreed that learning to use Web 2.0 technologies is easy for them. Of the 177 participants, 18 or 10.2% strongly agreed that learning to use Web 2.0 technologies is easy for them, 17 or 9.6% disagreed and 5 or 2.8% strongly disagreed with the statement. Survey Question 25 asked the participants if learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education. The results of this question can be found in **Table 27**.

The majority of the faculty members (83 or 46.9%) agreed that learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education and 55 or 31.1% remained neutral. Of the 177 participants, 26 or 14.7% strongly agreed that learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education and the minority either disagreed (8 or 4.5%) or strongly disagreed (5 or 2.8%) that learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education. Survey Question 26 asked the participants if their students expected them to use Web 2.0 technology for instruction. The results of this question can be found in **Table 28**.

The majority of the faculty members (77 or 43.5%) remained neutral and 46 or 26% of the faculty agreed that their students expected them to use Web 2.0 technology for instruction. Of the 177 participants, 30 or 16.9% disagreed and 12 or 6.8% both strongly disagreed and strongly agreed that their students expected them to us Web 2.0 technology for instruction. Survey Question 27 asked the participants to rate their level of agreement to the following statement: There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method. The results of this question can be found in **Table 29**.

The majority of the faculty members (65 or 36.7%) disagreed while 57 or 32.2% of the faculty members remained neutral regarding the statement. While 28 or 15.8% of the faculty members agreed and 10 or 5.6% of the faculty members strongly agreed that there were no differences in what they taught utilizing Web 2.0 technologies versus the traditional classroom method, 17 or 9.6% of the faculty strongly disagreed with the statement. Survey Question 28 asked the participants if infusing Web 2.0 technologies within their course content was a requirement for them. The results of this question can be found in **Table 30**.

The majority of the faculty members (54 or 30.5%) disagreed while 51 or 28.8% of the faculty members remained neutral regarding the statement. While 37 or 20.9% of the faculty

Table 27.
Frequency table—learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	.4	2.8	2.8
	Disagree	8	.7	4.5	7.3
	Neutral	55	4.6	31.1	38.4
	Agree	83	6.9	46.9	85.3
	Strongly Agree	26	2.2	14.7	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 28.
Frequency table—my students expect me to use Web 2.0 technologies for instruction.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	1.0	6.8	6.8
	Disagree	30	2.5	16.9	23.7
	Neutral	77	6.4	43.5	67.2
	Agree	46	3.8	26.0	93.2
	Strongly Agree	12	1.0	6.8	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 29.
Frequency table—there are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	1.4	9.6	9.6
	Disagree	65	5.4	36.7	46.3
	Neutral	57	4.7	32.2	78.5
	Agree	28	2.3	15.8	94.4
	Strongly Agree	10	.8	5.6	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 30.
Frequency table—infusing Web 2.0 technologies within my course content is a requirement for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	28	2.3	15.8	15.8
	Disagree	54	4.5	30.5	46.3
	Neutral	51	4.2	28.8	75.1
	Agree	37	3.1	20.9	96.0
	Strongly Agree	7	.6	4.0	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

members agreed and 7 or .6% of the faculty members strongly agreed that infusing Web 2.0 technologies within their course content is a requirement for them, 28 or 15.8% of the faculty strongly disagreed with the statement. Survey Question 29 asked the participants if there are many faculty development opportunities available to learn how to use these Web 2.0 technologies. The results of this question can be found in **Table 31**.

The majority of the faculty members (63 or 35.6%) agreed that there are many faculty development opportunities available to learn how to use these Web 2.0 technologies while 63 or 35.6% of the faculty members agreed with the statement and 55 or 31.1% of the faculty members remained neutral regarding the statement. Of the 177 participants, 35 or 19.8% disagreed and 11 or 6.2% strongly disagreed that there are many faculty development opportunities available to learn to use these Web 2.0 technologies. Survey Question 30 asked the participants if there are many faculty development programs available while they are on campus that they can sign up for to learn how to create course content utilizing Web 2.0 technologies. The results of this question can be found in **Table 32**.

The majority of the faculty members (59 or 33.3%) agreed that there are many faculty development programs available while they are on campus that they can sign up for to learn how to create course content utilizing Web 2.0 technologies and 55 or 31.1% remained neutral. While 38 or 21.5% of the faculty members disagreed with the statement and 14 or 7.9% of the faculty strongly disagreed with the statement, 11 or 6.2% of the faculty strongly agreed that there are many faculty development programs available while they are on campus that they can sign up for to learn how to create course content utilizing Web 2.0 technologies. Survey Question 31 asked the participants if the faculty development programs available on campus are based on varied proficiency levels, from beginner to expert. The results of this question can be found in **Table 33**.

While the majority of the faculty members (72 or 40.7%) remained neutral, 63 or 35.6% of the faculty agreed and 11 or 6.2% strongly agreed that the faculty development programs available on campus are based on varied proficiency levels. Out of 177 participants, 23 or 13.0% disagreed and 8 or 4.5% strongly disagreed that the faculty development programs available on campus are based on varied proficiency levels. Survey Question 32 asked the participants if the faculty development opportunities on campus are effective. The results of this question can be found in **Table 34**.

The majority of the faculty members (72 or 40.7%) agreed that the faculty development opportunities on campus are effective, while 68 or 38.4% remained neutral. Of the 177 participants, 11 or 6.2% strongly agreed with the statement, 22 or 12.4% disagreed and 4 or 2.3% strongly disagreed that the faculty development opportunities on campus are effective. Survey Question 33 asked the participants if they find it difficult to find the time to attend faculty development programs. The results of this question can be found in **Table 35**.

The majority of the faculty members (78 or 44.1%) agreed that they find it difficult to attend faculty development programs, while 47 or 26.6% remained neutral. Of the 177 participants, 24 or 13.6% both strongly agreed and disagreed with the statement, while 4 or 2.3% strongly disagreed that they find it difficult to attend faculty development programs. Survey Question 34 asked the participants if they find it difficult to keep up with technology because it is constantly changing. The results of this question can be found in **Table 36**.

Table 31.
Frequency table—there are many faculty development opportunities available to learn how to use these Web 2.0 technologies.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	.9	6.2	6.2
	Disagree	35	2.9	19.8	26.0
	Neutral	55	4.6	31.1	57.1
	Agree	63	5.2	35.6	92.7
	Strongly Agree	13	1.1	7.3	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 32.
Frequency table—there are many faculty development programs available while I am on campus that I can sign up for to learn how to create course content utilizing Web 2.0 technologies.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	1.2	7.9	7.9
	Disagree	38	3.1	21.5	29.4
	Neutral	55	4.6	31.1	60.5
	Agree	59	4.9	33.3	93.8
	Strongly Agree	11	.9	6.2	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 33.
Frequency table—faculty development programs available on campus are based on varied proficiency levels, from beginner to expert.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	.7	4.5	4.5
	Disagree	23	1.9	13.0	17.5
	Neutral	72	6.0	40.7	58.2
	Agree	63	5.2	35.6	93.8
	Strongly Agree	11	.9	6.2	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 34.
Frequency table—the faculty development opportunities on campus are effective.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	.3	2.3	2.3
	Disagree	22	1.8	12.4	14.7
	Neutral	68	5.6	38.4	53.1
	Agree	72	6.0	40.7	93.8
	Strongly Agree	11	.9	6.2	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 35.
Frequency table—I find it difficult to find the time to attend faculty development programs.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	.3	2.3	2.3
	Disagree	24	2.0	13.6	15.8
	Neutral	47	3.9	26.6	42.4
	Agree	78	6.5	44.1	86.4
	Strongly Agree	24	2.0	13.6	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 36.
Frequency table—I find it difficult to keep up with technology because it is constantly changing.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	1.3	9.0	9.0
	Disagree	38	3.1	21.5	30.5
	Neutral	52	4.3	29.4	59.9
	Agree	62	5.1	35.0	94.9
	Strongly Agree	9	.7	5.1	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

The majority of the faculty members (62 or 35.0%) agreed that they find it difficult to keep up with technology because it is constantly changing, while 52 or 29.4% remained neutral. Of the 177 participants, 38 or 21.5% disagreed with the statement, while 16 or 9.0% strongly disagreed and 9 or 5.1% strongly agreed that they find it difficult to keep up with technology because it is constantly changing. Survey Question 35 asked the participants if there is adequate computer access in most classrooms they teach in. The results of this question can be found in **Table 37**.

The majority of the faculty members (72 or 40.7%) agreed that there is adequate computer access in most classrooms they teach in. Of the 177 participants, 37 or 20.9% strongly agreed that there is adequate computer access in most classrooms they teach in, while 35 or 19.8% remained neutral, 23 or 13.0% disagreed and 10 or 5.6% strongly disagreed that there is adequate computer access in most classrooms they teach in. Survey Question 36 asked the participants if students are far more advanced in technology than they were. The results of this question can be found in **Table 38**.

The majority of the faculty members (63 or 35.6%) agreed that students are far more advanced in technology than they were, while 48 or 27.1% remained neutral about the statement. Of the 177 participants, 31 or 17.5% disagreed and 14 or 7.9% strongly disagreed that students are far more advanced in technology than they were. Survey Question 37 asked the participants if it took them a long time to learn how to use Web 2.0 technologies. The results of this question can be found in **Table 39**.

The majority of the faculty members (59 or 33.3%) disagreed

Table 37.
Frequency table—there is adequate computer access in most classrooms I teach in.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	.8	5.6	5.6
	Disagree	23	1.9	13.0	18.6
	Neutral	35	2.9	19.8	38.4
	Agree	72	6.0	40.7	79.1
	Strongly Agree	37	3.1	20.9	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 38.
Frequency table—students are far more advanced in technology than I am.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	1.2	7.9	7.9
	Disagree	31	2.6	17.5	25.4
	Neutral	48	4.0	27.1	52.5
	Agree	63	5.2	35.6	88.1
	Strongly Agree	21	1.7	11.9	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 39.
Frequency table—it takes me a long time to learn how to use Web 2.0 technologies.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	1.8	12.4	12.4
	Disagree	59	4.9	33.3	45.8
	Neutral	53	4.4	29.9	75.7
	Agree	38	3.1	21.5	97.2
	Strongly Agree	5	.4	2.8	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

that it takes them a long time to learn how to use Web 2.0 technologies, while 53 or 29.9% remained neutral. Of the 177 participants, 38 or 21.5% agreed, 22 or 12.4% strongly disagreed, and 5 or 2.8% strongly agreed that it takes them a long time to learn how to use Web 2.0 technologies. Survey Question 38 asked the participants if there are many incentive or reward programs available to faculty who attend faculty development programs on campus. The results of this question can be found in **Table 40**.

The majority of the faculty members (59 or 33.3%) disagreed that there were many incentive or reward programs available to faculty who attend faculty development programs on campus, while 57 or 32.2% remained neutral. Of the 177 participants, 38 or 21.5% strongly disagreed, 16 or 9.0% agreed, and 7 or 4.0%

strongly agreed that there are many incentives or reward programs available to faculty who attend faculty development programs on campus. Survey Question 39 asked the participants if teaching courses utilizing Web 2.0 technologies provides more flexibility than with traditional face-to-face method. The results of this question can be found in **Table 41**.

The majority of the faculty members (69 or 39.0%) agreed that teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method, while 65 or 36.7% remained neutral. Of the 177 participants, 18 or 10.2% disagreed, 15 or 8.5% strongly agreed, and 10 or 5.6% strongly disagreed that teaching courses utilizing Web 2.0 technologies provides more flexibility than with traditional face-to-face method. Survey Question 40 asked the participants if they were self-motivated. The results of this question can be found in **Table 42**.

Table 40.
Frequency table—there are many incentives or reward programs available to faculty who attend faculty development programs on campus.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	38	3.1	21.5	21.5
	Disagree	59	4.9	33.3	54.8
	Neutral	57	4.7	32.2	87.0
	Agree	16	1.3	9.0	96.0
	Strongly Agree	7	.6	4.0	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 41.
Frequency table—teaching courses utilizing Web 2.0 technologies provides more flexibility than with traditional face-to-face method.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	.8	5.6	5.6
	Disagree	18	1.5	10.2	15.8
	Neutral	65	5.4	36.7	52.5
	Agree	69	5.7	39.0	91.5
	Strongly Agree	15	1.2	8.5	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

Table 42.
Frequency table—I am self-motivated.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.2	1.7	1.7
	Disagree	5	.4	2.8	4.5
	Neutral	22	1.8	12.4	16.9
	Agree	86	7.1	48.6	65.5
	Strongly Agree	61	5.1	34.5	100.0
	Total	177	14.7	100.0	
Missing	System	1030	85.3		
Total		1207	100.0		

The majority of the faculty members (86 or 48.6%) agreed that they were self-motivated and 61 or 34.5% strongly agreed that they were self-motivated. Of the 177 participants, 22 or 12.4% remained neutral, 5 or 2.8% disagreed, and 3 or 1.7% strongly disagree that they were self-motivated.

Research Questions

The research study had one primary research question and six secondary research question. The hypotheses statements that support the primary and secondary research questions were:

The primary research question for this study was:

To what extent do faculty members teaching college courses utilizing Web 2.0 technologies perceive that this method is a practical alternative to the traditional classroom method?

The supporting hypothesis statements for the primary research question were:

$H1_0$ = There is no relationship between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom method.

$H1_1$ = There is a relationship between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom method.

The survey questions related to this research question were the following:

- Survey Question 6: Do you teach undergraduate or graduate courses?
- Survey Question 7: Do you teach traditional face-to-face, hybrid, or online courses?
- Survey Question 22: Using Web 2.0 technologies improves the quality of my teaching.
- Survey Question 23: Using Web 2.0 technologies enhances the student's experiences in the classroom.
- Survey Question 27: There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method.
- Survey Question 39: Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method.

A non-parametric Chi-squared test was completed to determine the extent to which faculty members perception of teaching college courses utilizing Web 2.0 technologies as a practical alternative to the traditional classroom method differ from the neutral point. Chi-square tests are used to evaluate whether or not differences between the observed and expected frequencies are due to chance alone or to something more than simple errors. The results of the chi-square test can be found in **Table 43**.

As indicated in **Table 43**, the minimum expected cell frequencies are significantly less than the chi-square values and the two-sided observed significance level on the Chi-Square (Asymp. Sig) are less than the customary .05 the null hypothesis is rejected. A Non-Parametric Chi-Square Hypothesis Test Summary was conducted also test the decision. The results can be found in **Table 44**.

The results in **Table 44** confirm the rejection of the null hypothesis. There was a significant difference between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom method. Therefore, the alternate hypothesis is accepted: there is a relationship between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom

Table 43.
Non-parametric chi-square test statistics.

	6. Do you teach undergraduate or graduate courses?	7. Do you teach traditional face-to-face, hybrid, or online courses?	22. Using Web 2.0 technologies improves the quality of my teaching	23. Using Web 2.0 technologies enhances the student's experiences in the classroom	27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	39. Teaching courses utilizing Web 2.0 technologies provides more flexibility t) han with the traditional face-to-face method
Chi-Square	83.932[a]	153.554[b]	141.164[c]	138.169[c]	67.266[c]	95.175[c]
Df	2	3	4	4	4	4
Asymp. Sig.	.000	.000	.000	.000	.000	.000

Note. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 59.0; *Note*. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 44.3; *Note*. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 35.4.

Table 44.
Non-parametric chi-square hypothesis test summary.

Null Hypothesis	Test	Sig	Decision
The categories of Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
The categories of There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
The categories of Using Web 2.0 technologies improves the quality my teaching occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
The categories of Using Web 2.0 technologies enhances the student's experiences in the classroom occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
The categories of Do you teach undergraduate or graduate courses occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
The categories of Do you teach traditional face-to-face, hybrid, or online course? occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.

Note. Asymptotic significance are displayed. The significance level is .05.

method.

The second research question for this study was:

To what extent do faculty members perceive that there is an adequate level of development programs available to create their course content utilizing Web 2.0 technologies?

The supporting hypothesis statements for the second research question were:

$H2_0$ = There is no relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.

$H2_1$ = There is a relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.

The survey questions related to this research question were the following:

- Survey Question 12: Specifically to the Web 2.0 technologies that your University offers, how technically proficient do you consider yourself to be?
- Survey Question 29: There are many faculty development opportunities available to learn how to use these Web 2.0 technologies.
- Survey Question 30: There are many faculty development programs available while I am on campus that I can sign up for to learn how to create course content utilizing Web 2.0 technologies.
- Survey Question 31: The faculty development programs available on campus are based on varied proficiency levels, from beginner to expert.

To test these hypotheses, a One Way ANOVA was conducted on the survey questions related to faculty development programs based on gender was conducted. The results can be found in **Table 45**.

As **Table 45** indicates, the *p*-values (Sig.) are .764, .224, .083, and .104 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05. That said, the null hypothesis is not rejected. There was no significant different between faculty members' perception based on gender of the level of development programs and the creation of course content utilizing Web 2.0 technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.

An additional One Way ANOVA was conducted on the survey questions related to faculty development programs based on age was conducted. The results can be seen in **Table 46**.

As **Table 46** indicates, the *p*-values (Sig.) are .024, .053, .086, and .732 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05 except for one. That said, we do not reject the null hypothesis. There was no significant difference between faculty members' perception based on age of the level of development programs and the creation of course content utilizing Web 2.0 technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.

A third One Way ANOVA was conducted on the survey questions related to faculty development programs based on employment status was conducted. The results can be seen in **Table 47**.

Table 45.
One way ANOVA test based on gender.

		Sum of Squares	df	Mean Square	F	Sig.
12. Specifically to the Web 2.0 technologies that your University offers, how technically proficient do you consider yourself to be?	Between Groups	.123	1	.123	.090	.764
	Within Groups	238.431	175	1.362		
	Total	238.554	176			
29. There are many faculty development opportunities available to learn how to use these Web 2.0 technologies	Between Groups	1.589	1	1.589	1.490	.224
	Within Groups	186.625	175	1.066		
	Total	188.215	176			
30. There are many faculty development programs available while I am on campus that I can sign up for to learn how to create course content utilizing Web 2.0 technologies	Between Groups	3.352	1	3.352	3.049	.083
	Within Groups	192.377	175	1.099		
	Total	195.729	176			
31. The faculty development programs available on campus are based on varied proficiency levels, from beginner to expert	Between Groups	2.253	1	2.253	2.668	.104
	Within Groups	147.792	175	.845		
	Total	150.045	176			

Table 46.
One way ANOVA test based on age.

		Sum of Squares	df	Mean Square	F	Sig.
12. Specifically to the Web 2.0 technologies that your University offers, how technically proficient do you consider yourself to be?	Between Groups	17.255	5	3.451	2.667	.024
	Within Groups	221.298	171	1.294		
	Total	238.554	176			
29. There are many faculty development opportunities available to learn how to use these Web 2.0 technologies	Between Groups	11.552	5	2.310	2.236	.053
	Within Groups	176.663	171	1.033		
	Total	188.215	176			
30. There are many faculty development programs available while I am on campus that I can sign up for to learn how to create course content utilizing Web 2.0 technologies	Between Groups	10.628	5	2.126	1.964	.086
	Within Groups	185.101	171	1.082		
	Total	195.729	176			
31. The faculty development programs available on campus are based on varied proficiency levels, from beginner to expert	Between Groups	2.408	5	.482	.558	.732
	Within Groups	147.637	171	.863		
	Total	150.045	176			

Table 47.
One way ANOVA test based on employment status.

		Sum of Squares	df	Mean Square	F	Sig.
12. Specifically to the Web 2.0 technologies that your University offers, how technically proficient do you consider yourself to be?	Between Groups	13.460	6	2.243	1.694	.125
	Within Groups	225.093	170	1.324		
	Total	238.554	176			
29. There are many faculty development opportunities available to learn how to use these Web 2.0 technologies	Between Groups	3.335	6	.556	.511	.799
	Within Groups	184.880	170	1.088		
	Total	188.215	176			
30. There are many faculty development programs available while I am on campus that I can sign up for to learn how to create course content utilizing Web 2.0 technologies	Between Groups	3.798	6	.633	.561	.761
	Within Groups	191.931	170	1.129		
	Total	195.729	176			
31. The faculty development programs available on campus are based on varied proficiency levels, from beginner to expert	Between Groups	6.200	6	1.033	1.221	.298
	Within Groups	143.845	170	.846		
	Total	150.045	176			

Table 47 indicates that the *p*-values (Sig.) are .125, .799, .761, and .298 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05. That said, we do not reject the null hypothesis. There was no significant difference between faculty members' perception based on employment status of the level of development programs and the creation of course content utilizing Web 2.0 technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.

The third research question was:

To what extent do faculty members perceive that the faculty development programs affecting technology integration are effective?

The supporting hypothesis statements for the third research question were:

$H3_0$ = There is no relationship between faculty members' perception of development programs affecting technology integration and their effectiveness.

$H3_1$ = There is a relationship between faculty members' perception of development programs affecting technology integration and their effectiveness.

The survey questions related to this research question were the following:

- Survey Question 14: Blogs;
- Survey Question 15: Facebook;
- Survey Question 16: Podcast;
- Survey Question 17: Second Life;
- Survey Question 18: Skype;
- Survey Question 19: Twitter;
- Survey Question 20: Wiki;
- Survey Question 21: YouTube;
- Survey Question 32: The faculty development opportunities on campus are effective.

To test these hypotheses, a One Way ANOVA of the Web 2.0 technologies survey questions based on gender was conducted. The results can be seen in **Table 48**.

As **Table 48** indicates, the *p*-values (Sig.) are .809, .819, .991, .163, .857, .935, .848, .005, and .089 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05 except for one. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' perception based on gender of development programs affecting technology and their effectiveness. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of development programs affecting technology integration and their effectiveness.

An additional One Way ANOVA of the Web 2.0 technologies survey questions based on employment status was conducted. The results can be seen in **Table 49**.

As **Table 49** indicates, the *p*-values (Sig.) are .088, .151, .259, .081, .039, .002, .249, .077, and .366 respectively. When the *p*-value is less than the commonly accepted .05 value, the null hypothesis is not rejected. In this case all of the *p*-values are greater than .05 except for two. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' perception based on employment status of development programs affecting technology integration and their effectiveness. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of development programs affecting technology integration and their effectiveness.

The fourth research question was:

To what extent do faculty members perceive that the impact of the barriers affecting technology integration is hindering their ability to utilize Web 2.0 technologies?

The supporting hypothesis statements for the fourth research question were:

$H4_0$ = There is no relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0

Table 48.
One way ANOVA test based on gender.

		Sum of Squares	df	Mean Square	F	Sig.
14. Blogs	Between Groups	.078	1	.078	.059	.809
	Within Groups	231.662	175	1.324		
	Total	231.740	176			
15. Facebook	Between Groups	.088	1	.088	.052	.819
	Within Groups	294.228	175	1.681		
	Total	294.316	176			
16. Podcast	Between Groups	.000	1	.000	.000	.991
	Within Groups	233.977	175	1.337		
	Total	233.977	176			
17. Second Life	Between Groups	1.089	1	1.089	1.966	.163
	Within Groups	96.889	175	.554		
	Total	97.977	176			
18. Skype	Between Groups	.039	1	.039	.032	.857
	Within Groups	208.922	175	1.194		
	Total	208.960	176			
19. Twitter	Between Groups	.006	1	.006	.007	.935
	Within Groups	164.005	175	.937		
	Total	164.011	176			
20. Wiki	Between Groups	.044	1	.044	.037	.848
	Within Groups	208.465	175	1.191		
	Total	208.508	176			
21. YouTube	Between Groups	8.844	1	8.844	8.203	.005
	Within Groups	188.681	175	1.078		
	Total	197.525	176			
32. The faculty development opportunities on campus are effective	Between Groups	2.147	1	2.147	2.919	.089
	Within Groups	128.712	175	.735		
	Total	130.859	176			

Table 49.
One way ANOVA test based on employment status.

		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	14.366	6	2.394	1.872	.088
14. Blogs	Within Groups	217.374	170	1.279		
	Total	231.740	176			
	Between Groups	15.708	6	2.618	1.597	.151
15. Facebook	Within Groups	278.608	170	1.639		
	Total	294.316	176			
	Between Groups	10.275	6	1.712	1.301	.259
16. Podcast	Within Groups	223.702	170	1.316		
	Total	233.977	176			
	Between Groups	6.202	6	1.034	1.915	.081
17. Second Life	Within Groups	91.776	170	.540		
	Total	97.977	176			
	Between Groups	15.534	6	2.589	2.275	.039
18. Skype	Within Groups	193.427	170	1.138		
	Total	208.960	176			
	Between Groups	18.581	6	3.097	3.620	.002
19. Twitter	Within Groups	145.430	170	.855		
	Total	164.011	176			
	Between Groups	9.314	6	1.552	1.325	.249
20. Wiki	Within Groups	199.194	170	1.172		
	Total	208.508	176			
	Between Groups	12.673	6	2.112	1.943	.077
21. YouTube	Within Groups	184.852	170	1.087		
	Total	197.525	176			
	Between Groups	4.879	6	.813	1.097	.366
32. The faculty development opportunities on campus are effective	Within Groups	125.979	170	.741		
	Total	130.859	176			

technologies.

$H4_1$ = There is a relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies.

The survey questions related to this research question were the following:

- Survey Question 8: Do you prefer to teach traditional face-to-face, hybrid, or online courses?
- Survey Question 9: Do you have a personal (home) computer?
- Survey Question 10: do you have a computer issued from the University?
- Survey Question 11: In general, how technically proficient do you consider yourself to be?
- Survey Question 13: In general, I learn best by.
- Survey Question 24: Learning to use Web 2.0 technologies is easy for me.
- Survey Question 25: Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education.
- Survey Question 26: My students expect me to use Web 2.0 technology for instruction.
- Survey Question 28: Infusing Web 2.0 technologies within my course content is a requirement for me.
- Survey Question 33: I find it difficult to find the time to attend faculty development programs.
- Survey Question 34: I find it difficult to keep up with technology because it is constantly changing.
- Survey Question 35: There is adequate computer access in most classrooms I teach in.
- Survey Question 36: Students are far more advanced in technology than I am.
- Survey Question 37: It takes me a long time to learn how to use Web 2.0 technologies.
- Survey Question 38: There are many incentives or reward programs available to faulty who attend faculty development programs on campus.
- Survey Question 40: I am self-motivated.

To test these hypotheses, a One Way ANOVA of survey questions relating to barriers based on gender. The results can be found in **Table 50**.

As **Table 50** indicates, the *p*-values (Sig.) are .092, .520, .887, .464, .599, .170, .000, .073, .099, .998, .444, .581, .508, .152, .892, and .117 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05 except for one. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' perception based on gender of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies.

An additional One Way ANOVA of survey questions relating to barriers based age was also conducted. The results can be

Table 50.
One way ANOVA test based on gender.

		Sum of Squares	df	Mean Square	F	Sig.
8. Do you prefer to teach traditional face-to-face, hybrid, or online courses?	Between Groups	3.561	1	3.561	2.873	.092
	Within Groups	216.958	175	1.240		
	Total	220.520	176			
9. Do you have a personal (home) computer?	Between Groups	.012	1	.012	.416	.520
	Within Groups	4.847	175	.028		
	Total	4.859	176			
10. Do you have a computer issued from the University?	Between Groups	.005	1	.005	.020	.887
	Within Groups	44.006	175	.251		
	Total	44.011	176			
11. In general, how technically proficient do you consider yourself to be?	Between Groups	.624	1	.624	.539	.464
	Within Groups	202.878	175	1.159		
	Total	203.503	176			
13. In general, I learn best by	Between Groups	.249	1	.249	.278	.599
	Within Groups	156.712	175	.895		
	Total	156.960	176			
24. Learning to use Web 2.0 technologies is easy for me	Between Groups	1.538	1	1.538	1.898	.170
	Within Groups	141.829	175	.810		
	Total	143.367	176			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	13.616	1	13.616	19.209	.000
	Within Groups	124.045	175	.709		
	Total	137.661	176			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	3.104	1	3.104	3.244	.073
	Within Groups	167.449	175	.957		
	Total	170.554	176			
28. Infusing Web 2.0 technologies within my course content is a requirement for me	Between Groups	3.278	1	3.278	2.757	.099
	Within Groups	208.056	175	1.189		
	Total	211.333	176			
33. I find it difficult to find the time to attend faculty development programs	Between Groups	.000	1	.000	.000	.998
	Within Groups	164.079	175	.938		
	Total	164.079	176			
34. I find it difficult to keep up with technology because it is constantly changing	Between Groups	.670	1	.670	.590	.444
	Within Groups	198.765	175	1.136		
	Total	199.435	176			
35. There is adequate computer access in most classrooms I teach in	Between Groups	.389	1	.389	.306	.581
	Within Groups	222.673	175	1.272		
	Total	223.062	176			
36. Students are far more advanced in technology than I am	Between Groups	.558	1	.558	.441	.508
	Within Groups	221.488	175	1.266		
	Total	222.045	176			
37. It takes me a long time to learn how to use Web 2.0 technologies	Between Groups	2.200	1	2.200	2.073	.152
	Within Groups	185.710	175	1.061		
	Total	187.910	176			
38. There are many incentives or reward programs available to faculty who attend faculty development programs on campus	Between Groups	.021	1	.021	.019	.892
	Within Groups	192.691	175	1.101		
	Total	192.712	176			
40. I am self-motivated	Between Groups	1.782	1	1.782	2.476	.117
	Within Groups	125.958	175	.720		
	Total	127.740	176			

found in **Table 51**.

As **Table 51** indicates, the *p*-values (Sig.) are .527, .209, .185, .295, .293, .011, .027, .111, .114, .750, .187, .007, .012, .430, .091, and .010 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05 except for five. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' perception based on age of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0

Table 51.
One way ANOVA test based on age.

		Sum of Squares	df	Mean Square	F	Sig.
8. Do you prefer to teach traditional face-to-face, hybrid, or online courses?	Between Groups	5.255	5	1.051	.835	.527
	Within Groups	215.265	171	1.259		
	Total	220.520	176			
9. Do you have a personal (home) computer?	Between Groups	.197	5	.039	1.449	.209
	Within Groups	4.661	171	.027		
	Total	4.859	176			
10. Do you have a computer issued from the University?	Between Groups	1.876	5	.375	1.523	.185
	Within Groups	42.135	171	.246		
	Total	44.011	176			
11. In general, how technically proficient do you consider yourself to be?	Between Groups	7.088	5	1.418	1.234	.295
	Within Groups	196.414	171	1.149		
	Total	203.503	176			
13. In general, I learn best by	Between Groups	5.488	5	1.098	1.239	.293
	Within Groups	151.472	171	.886		
	Total	156.960	176			
24. Learning to use Web 2.0 technologies is easy for me	Between Groups	11.764	5	2.353	3.057	.011
	Within Groups	131.603	171	.770		
	Total	143.367	176			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	9.705	5	1.941	2.594	.027
	Within Groups	127.956	171	.748		
	Total	137.661	176			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	8.626	5	1.725	1.822	.111
	Within Groups	161.927	171	.947		
	Total	170.554	176			
28. Infusing Web 2.0 technologies within my course content is a requirement for me	Between Groups	10.616	5	2.123	1.809	.114
	Within Groups	200.717	171	1.174		
	Total	211.333	176			
33. I find it difficult to find the time to attend faculty development programs	Between Groups	2.525	5	.505	.534	.750
	Within Groups	161.554	171	.945		
	Total	164.079	176			
34. I find it difficult to keep up with technology because it is constantly changing	Between Groups	8.468	5	1.694	1.517	.187
	Within Groups	190.967	171	1.117		
	Total	199.435	176			
35. There is adequate computer access in most classrooms I teach in	Between Groups	19.724	5	3.945	3.317	.007
	Within Groups	203.338	171	1.189		
	Total	223.062	176			
36. Students are far more advanced in technology than I am	Between Groups	17.986	5	3.597	3.014	.012
	Within Groups	204.060	171	1.193		
	Total	222.045	176			
37. It takes me a long time to learn how to use Web 2.0 technologies	Between Groups	5.251	5	1.050	.983	.430
	Within Groups	182.658	171	1.068		
	Total	187.910	176			
38. There are many incentives or reward programs available to faculty who attend faculty development programs on campus	Between Groups	10.314	5	2.063	1.934	.091
	Within Groups	182.398	171	1.067		
	Total	192.712	176			
40. I am self-motivated	Between Groups	10.729	5	2.146	3.136	.010
	Within Groups	117.011	171	.684		
	Total	127.740	176			

technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies.

A third One Way ANOVA of survey questions relating to barriers based on employment status was also conducted. The results can be seen in **Table 52**.

Table 52 reflects the majority of the *p*-values being greater than .05. That said, we do not reject the null hypothesis. There was no significant difference between faculty members' per-

Table 52.
One way ANOVA test based on employment status.

		Sum of Squares	df	Mean Square	F	Sig.
8. Do you prefer to teach traditional face-to-face, hybrid, or online courses?	Between Groups	7.047	6	1.174	.935	.471
	Within Groups	213.473	170	1.256		
	Total	220.520	176			
9. Do you have a personal (home) computer?	Between Groups	.972	6	.162	7.088	.000
	Within Groups	3.886	170	.023		
	Total	4.859	176			
10. Do you have a computer issued from the University?	Between Groups	12.068	6	2.011	10.705	.000
	Within Groups	31.943	170	.188		
	Total	44.011	176			
11. In general, how technically proficient do you consider yourself to be?	Between Groups	3.332	6	.555	.472	.829
	Within Groups	200.171	170	1.177		
	Total	203.503	176			
13. In general, I learn best by	Between Groups	2.374	6	.396	.435	.855
	Within Groups	154.587	170	.909		
	Total	156.960	176			
24. Learning to use Web 2.0 technologies is easy for me	Between Groups	4.527	6	.755	.924	.479
	Within Groups	138.840	170	.817		
	Total	143.367	176			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	5.646	6	.941	1.212	.303
	Within Groups	132.015	170	.777		
	Total	137.661	176			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	4.631	6	.772	.791	.578
	Within Groups	165.922	170	.976		
	Total	170.554	176			
28. Infusing Web 2.0 technologies within my course content is a requirement for me	Between Groups	6.001	6	1.000	.828	.550
	Within Groups	205.333	170	1.208		
	Total	211.333	176			
33. I find it difficult to find the time to attend faculty development programs	Between Groups	11.977	6	1.996	2.231	.042
	Within Groups	152.102	170	.895		
	Total	164.079	176			
34. I find it difficult to keep up with technology because it is constantly changing	Between Groups	6.446	6	1.074	.946	.463
	Within Groups	192.989	170	1.135		
	Total	199.435	176			
35. There is adequate computer access in most classrooms I teach in	Between Groups	6.773	6	1.129	.887	.506
	Within Groups	216.289	170	1.272		
	Total	223.062	176			
36. Students are far more advanced in technology than I am	Between Groups	3.087	6	.514	.399	.879
	Within Groups	218.958	170	1.288		
	Total	222.045	176			
37. It takes me a long time to learn how to use Web 2.0 technologies	Between Groups	10.932	6	1.822	1.750	.112
	Within Groups	176.977	170	1.041		
	Total	187.910	176			
38. There are many incentives or reward programs available to faculty who attend faculty development programs on campus	Between Groups	3.936	6	.656	.591	.737
	Within Groups	188.775	170	1.110		
	Total	192.712	176			
40. I am self-motivated	Between Groups	2.825	6	.471	.641	.698
	Within Groups	124.916	170	.735		
	Total	127.740	176			

ception based on employment status of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies.

The fifth research question was:

Is there a difference in male and female faculty members' perceptions regarding their use of Web 2.0 technologies in their

courses?

The supporting hypothesis statements for the fifth research question were:

$H5_0$ = There is no relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses.

$H5_1$ = There is a relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses.

The survey questions related to this research question were the following:

- Survey Question 1: Please select your gender.
- Survey Question 22: Using Web 2.0 technologies improves the quality of my teaching.
- Survey Question 23: Using Web 2.0 technologies enhances the student's experiences in the classroom.
- Survey Question 25: Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education.
- Survey Question 26: My students expect me to use Web 2.0 technology for instruction.
- Survey Question 27: There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method.
- Survey Question 39: Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method.
- Survey Question 40: I am self-motivated.

A One Way ANOVA of survey questions relating to perception regarding their use of Web 2.0 technologies in their courses based on gender was conducted. The results can be seen in **Table 53**.

As **Table 53** indicates, the *p*-values (Sig.) are .002, .000, .073, .000, .118, .012, and .117 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are less than .05 except for three. That said, the null hypothesis is rejected. There was a significant difference between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses. Therefore, the alternate hypothesis is accepted. There is a relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses.

The sixth research question was:

Is there a difference in faculty members' perceptions regarding their use of Web 2.0 technologies in their courses respective to their age?

The supporting hypothesis statements for the sixth research question were:

$H6_0$ = There is no relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses.

$H6_1$ = There is a relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses.

The survey questions related to this research question were the following:

- Survey Question 2: Which category below includes your age.
- Survey Question 22: Using Web 2.0 technologies improves the quality of my teaching.
- Survey Question 23: Using Web 2.0 technologies enhances the student's experiences in the classroom.
- Survey Question 25: Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education.
- Survey Question 26: My students expect me to use Web 2.0 technology for instruction.

Table 53.
One way ANOVA test based on gender.

		Sum of Squares	df	Mean Square	F	Sig.
22. Using Web 2.0 technologies improves the quality of my teaching	Between Groups	7.141	1	7.141	10.267	.002
	Within Groups	121.718	175	.696		
	Total	128.859	176			
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	Between Groups	10.831	1	10.831	16.424	.000
	Within Groups	115.406	175	.659		
	Total	126.237	176			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	3.104	1	3.104	3.244	.073
	Within Groups	167.449	175	.957		
	Total	170.554	176			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	13.616	1	13.616	19.209	.000
	Within Groups	124.045	175	.709		
	Total	137.661	176			
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	Between Groups	2.587	1	2.587	2.464	.118
	Within Groups	183.718	175	1.050		
	Total	186.305	176			
39. Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method	Between Groups	5.889	1	5.889	6.438	.012
	Within Groups	160.088	175	.915		
	Total	165.977	176			
40. I am self-motivated	Between Groups	1.782	1	1.782	2.476	.117
	Within Groups	125.958	175	.720		
	Total	127.740	176			

- Survey Question 27: There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method.
- Survey Question 39: Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method.
- Survey Question 40: I am self-motivated.

A One Way ANOVA of survey questions relating to perception regarding their use of Web 2.0 technologies in their courses based on age was conducted. The results can be seen in **Table 54**.

As **Table 54** indicates, the *p*-values (Sig.) are .001, .008, .111, .027, .026, .100, and .010 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are less than .05 except for two. That said, the null hypothesis is rejected. There was a significant difference between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses. Therefore, the alternate hypothesis is accepted. There is a relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses. A Bonferroni multiple comparison test was conducted on age to see which pairs were significantly different. The results of the test can be seen in **Table 55**.

Table 55 revealed that there are a few pairs of means that are significantly different from each other.

Faculty members who were in the age range of 30 - 39 believed that using Web 2.0 technologies improves the quality of their teaching significantly more than those faculty members who were in the age range of 50 - 59 and 60 - 69. Those faculty members who were in the age range of 30 - 39 believed that using Web 2.0 technologies enhances the student's experiences in the classroom significantly more than the faculty members who were in the age range of 50 - 59. The faculty members who were in the age range of 30 - 39 believed that learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education significantly more than those faculty members who were in the age range of 60 - 69. Faculty members who were in the age range of 20 - 29 believed that there are no differences in what they taught utilizing Web 2.0 technologies versus the traditional classroom method significantly more than the faculty member who were in the age ranges of 60 - 69 and 70+. Faculty members who were in the age range of 60 - 69 believe that they are self-motivated significantly more than the faculty members who were in the age range of 20 - 29.

The seventh research question was:

Is there a difference in faculty members' perceptions regarding their use of Web 2.0 technologies in their courses respective to their employment status?

The supporting hypothesis statements for the seventh research question were:

$H7_0$ = There is no relationship between faculty members' status and perception regarding their use of Web 2.0 technologies in their courses.

$H7_1$ = There is a relationship between faculty members' status and perception regarding their use of Web 2.0 technologies in their courses.

The survey questions related to this research question were the following:

- Survey Question 3: Please select the number of years you have been teaching in higher education.
- Survey Question 4: Please select the number of years you have been teaching at your University.
- Survey Question 5: Please select your current employment status within the University.
- Survey Question 22: Using Web 2.0 technologies improves the quality of my teaching.
- Survey Question 23: Using Web 2.0 technologies enhances the student's experiences in the classroom.
- Survey Question 25: Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education.
- Survey Question 26: My students expect me to use Web 2.0 technology for instruction.
- Survey Question 27: There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method.

Table 54.
One way ANOVA test based on age.

		Sum of Squares	df	Mean Square	F	Sig.
22. Using Web 2.0 technologies improves the quality of my teaching	Between Groups	14.757	5	2.951	4.423	.001
	Within Groups	114.102	171	.667		
	Total	128.859	176			
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	Between Groups	10.939	5	2.188	3.245	.008
	Within Groups	115.298	171	.674		
	Total	126.237	176			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	8.626	5	1.725	1.822	.111
	Within Groups	161.927	171	.947		
	Total	170.554	176			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	9.705	5	1.941	2.594	.027
	Within Groups	127.956	171	.748		
	Total	137.661	176			
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	Between Groups	13.284	5	2.657	2.626	.026
	Within Groups	173.021	171	1.012		
	Total	186.305	176			
39. Teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method	Between Groups	8.656	5	1.731	1.882	.100
	Within Groups	157.322	171	.920		
	Total	165.977	176			
40. I am self-motivated	Between Groups	10.729	5	2.146	3.136	.010
	Within Groups	117.011	171	.684		
	Total	127.740	176			

Table 55.
Bonferroni multiple comparison on age.

Dependent Variable	(I) Which category below includes your age?	(J) Which category below includes your age?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
22. Using Web 2.0 technologies improves the quality of my teaching	20 - 29	30 - 39	−.61250	.23712	.159	−1.3183	.0933
		40 - 49	−.31250	.25530	1.000	−1.0725	.4475
		50 - 59	.09861	.23712	1.000	−.6072	.8045
		60 - 69	.04044	.24697	1.000	−.6947	.7756
		70+	−.01250	.32839	1.000	−.9900	.9650
	30 - 39	20 - 29	.61250	.23712	.159	−.0933	1.3183
		40 - 49	.30000	.19608	1.000	−.2837	.8837
		50 - 59	.71111*	.17174	.001	.1999	1.2223
		60 - 69	.65294*	.18511	.008	.1019	1.2040
		70+	.60000	.28480	.549	−.2478	1.4478
	40 - 49	20 - 29	.31250	.25530	1.000	−.4475	1.0725
		30 - 39	−.30000	.19608	1.000	−.8837	.2837
		50 - 59	.41111	.19608	.562	−.1726	.9948
		60 - 69	.35294	.20790	1.000	−.2659	.9718
		70+	.30000	.30011	1.000	−.5934	1.1934
	50 - 59	20 - 29	−.09861	.23712	1.000	−.8045	.6072
		30 - 39	−.71111*	.17174	.001	−1.2223	−.1999
		40 - 49	−.41111	.19608	.562	−.9948	.1726
		60 - 69	−.05817	.18511	1.000	−.6092	.4929
		70+	−.11111	.28480	1.000	−.9589	.7367
	60 - 69	20 - 29	−.04044	.24697	1.000	−.7756	.6947
		30 - 39	−.65294*	.18511	.008	−1.2040	−.1019
		40 - 49	−.35294	.20790	1.000	−.9718	.2659
		50 - 59	.05817	.18511	1.000	−.4929	.6092
		70+	−.05294	.29306	1.000	−.9253	.8194
	70+	20 - 29	.01250	.32839	1.000	−.9650	.9900
		30 - 39	−.60000	.28480	.549	−1.4478	.2478
		40 - 49	−.30000	.30011	1.000	−1.1934	.5934
		50 - 59	.11111	.28480	1.000	−.7367	.9589
		60 - 69	.05294	.29306	1.000	−.8194	.9253
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	20 - 29	30 - 39	−.49167	.23842	.610	−1.2014	.2180
		40 - 49	−.30357	.25670	1.000	−1.0677	.4606
		50 - 59	.10833	.23842	1.000	−.6014	.8180
		60 - 69	.05147	.24833	1.000	−.6877	.7907
		70+	.07500	.33019	1.000	−.9079	1.0579
	30 - 39	20 - 29	.49167	.23842	.610	−.2180	1.2014
		40 - 49	.18810	.19716	1.000	−.3988	.7750
		50 - 59	.60000*	.17268	.010	.0860	1.1140
		60 - 69	.54314	.18612	.060	−.0109	1.0972
		70+	.56667	.28636	.741	−.2858	1.4191
	40 - 49	20 - 29	.30357	.25670	1.000	−.4606	1.0677
		30 - 39	−.18810	.19716	1.000	−.7750	.3988
		50 - 59	.41190	.19716	.572	−.1750	.9988
		60 - 69	.35504	.20903	1.000	−.2672	.9773
		70+	.37857	.30175	1.000	−.5197	1.2768
	50 - 59	20 - 29	−.10833	.23842	1.000	−.8180	.6014
		30 - 39	−.60000*	.17268	.010	−1.1140	−.0860
		40 - 49	−.41190	.19716	.572	−.9988	.1750
		60 - 69	−.05686	.18612	1.000	−.6109	.4972
		70+	−.03333	.28636	1.000	−.8858	.8191

Continued

		20 - 29	−.05147	.24833	1.000	−.7907	.6877
		30 - 39	−.54314	.18612	.060	−1.0972	.0109
	60 - 69	40 - 49	−.35504	.20903	1.000	−.9773	.2672
		50 - 59	.05686	.18612	1.000	−.4972	.6109
		70+	.02353	.29466	1.000	−.8536	.9007
		20 - 29	−.07500	.33019	1.000	−1.0579	.9079
		30 - 39	−.56667	.28636	.741	−1.4191	.2858
	70+	40 - 49	−.37857	.30175	1.000	−1.2768	.5197
		50 - 59	.03333	.28636	1.000	−.8191	.8858
		60 - 69	−.02353	.29466	1.000	−.9007	.8536
		30 - 39	−.43750	.25110	1.000	−1.1850	.3100
		40 - 49	−.18750	.27035	1.000	−.9923	.6173
	20 - 29	50 - 59	−.01528	.25110	1.000	−.7627	.7322
		60 - 69	.15074	.26153	1.000	−.6278	.9293
		70+	.36250	.34775	1.000	−.6727	1.3977
		20 - 29	.43750	.25110	1.000	−.3100	1.1850
		40 - 49	.25000	.20764	1.000	−.3681	.8681
	30 - 39	50 - 59	.42222	.18187	.321	−.1191	.9636
		60 - 69	.58824*	.19602	.046	.0047	1.1718
		70+	.80000	.30159	.131	−.0978	1.6978
		20 - 29	.18750	.27035	1.000	−.6173	.9923
		30 - 39	−.25000	.20764	1.000	−.8681	.3681
	40 - 49	50 - 59	.17222	.20764	1.000	−.4459	.7903
		60 - 69	.33824	.22015	1.000	−.3171	.9936
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education		70+	.55000	.31780	1.000	−.3960	1.4960
		20 - 29	.01528	.25110	1.000	−.7322	.7627
		30 - 39	−.42222	.18187	.321	−.9636	.1191
	50 - 59	40 - 49	−.17222	.20764	1.000	−.7903	.4459
		60 - 69	.16601	.19602	1.000	−.4175	.7495
		70+	.37778	.30159	1.000	−.5200	1.2755
		20 - 29	−.15074	.26153	1.000	−.9293	.6278
		30 - 39	−.58824*	.19602	.046	−1.1718	−.0047
	60 - 69	40 - 49	−.33824	.22015	1.000	−.9936	.3171
		50 - 59	−.16601	.19602	1.000	−.7495	.4175
		70+	.21176	.31033	1.000	−.7120	1.1356
		20 - 29	−.36250	.34775	1.000	−1.3977	.6727
		30 - 39	−.80000	.30159	.131	−1.6978	.0978
	70+	40 - 49	−.55000	.31780	1.000	−1.4960	.3960
		50 - 59	−.37778	.30159	1.000	−1.2755	.5200
		60 - 69	−.21176	.31033	1.000	−1.1356	.7120
		30 - 39	−.50694	.28242	1.000	−1.3476	.3337
		40 - 49	−.16964	.30408	1.000	−1.0748	.7355
	20 - 29	50 - 59	.07083	.28242	1.000	−.7699	.9115
		60 - 69	−.06250	.29416	1.000	−.9381	.8131
		70+	−.06250	.39113	1.000	−1.2268	1.1018
		20 - 29	.50694	.28242	1.000	−.3337	1.3476
		40 - 49	.33730	.23355	1.000	−.3579	1.0325
26. My students expect me to use Web 2.0 technology for instruction	30 - 39	50 - 59	.57778	.20455	.079	−.0311	1.1867
		60 - 69	.44444	.22048	.681	−.2119	1.1008
		70+	.44444	.33921	1.000	−.5653	1.4542
		20 - 29	.16964	.30408	1.000	−.7355	1.0748
		30 - 39	−.33730	.23355	1.000	−1.0325	.3579
	40 - 49	50 - 59	.24048	.23355	1.000	−.4547	.9357
		60 - 69	.10714	.24761	1.000	−.6299	.8442
		70+	.10714	.35744	1.000	−.9569	1.1712

Continued

		20 - 29	−.07083	.28242	1.000	−.9115	.7699
		30 - 39	−.57778	.20455	.079	−1.1867	.0311
	50 - 59	40 - 49	−.24048	.23355	1.000	−.9357	.4547
		60 - 69	−.13333	.22048	1.000	−.7896	.5230
		70+	−.13333	.33921	1.000	−1.1431	.8764
		20 - 29	.06250	.29416	1.000	−.8131	.9381
		30 - 39	−.44444	.22048	.681	−1.1008	.2119
	60 - 69	40 - 49	−.10714	.24761	1.000	−.8442	.6299
		50 - 59	.13333	.22048	1.000	−.5230	.7896
		70+	.00000	.34905	1.000	−1.0390	1.0390
		20 - 29	.06250	.39113	1.000	−1.1018	1.2268
		30 - 39	−.44444	.33921	1.000	−1.4542	.5653
	70+	40 - 49	−.10714	.35744	1.000	−1.1712	.9569
		50 - 59	.13333	.33921	1.000	−.8764	1.1431
		60 - 69	.00000	.34905	1.000	−1.0390	1.0390
		30 - 39	.70417	.29279	.259	−.1675	1.5758
		40 - 49	.68750	.31524	.458	−.2510	1.6260
	20 - 29	50 - 59	.74861	.29279	.171	−.1230	1.6202
		60 - 69	.93750*	.30496	.037	.0296	1.8454
		70+	1.32639*	.41912	.028	.0787	2.5741
		20 - 29	−.70417	.29279	.259	−1.5758	.1675
		40 - 49	−.01667	.24212	1.000	−.7375	.7041
	30 - 39	50 - 59	.04444	.21206	1.000	−.5869	.6757
		60 - 69	.23333	.22857	1.000	−.4471	.9138
		70+	.62222	.36730	1.000	−.4712	1.7157
		20 - 29	−.68750	.31524	.458	−1.6260	.2510
		30 - 39	.01667	.24212	1.000	−.7041	.7375
	40 - 49	50 - 59	.06111	.24212	1.000	−.6597	.7819
		60 - 69	.25000	.25670	1.000	−.5142	1.0142
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method		70+	.63889	.38544	1.000	−.5086	1.7863
		20 - 29	−.74861	.29279	.171	−1.6202	.1230
		30 - 39	−.04444	.21206	1.000	−.6757	.5869
	50 - 59	40 - 49	−.06111	.24212	1.000	−.7819	.6597
		60 - 69	.18889	.22857	1.000	−.4916	.8693
		70+	.57778	.36730	1.000	−.5157	1.6712
		20 - 29	−.93750*	.30496	.037	−1.8454	−.0296
		30 - 39	−.23333	.22857	1.000	−.9138	.4471
	60 - 69	40 - 49	−.25000	.25670	1.000	−1.0142	.5142
		50 - 59	−.18889	.22857	1.000	−.8693	.4916
		70+	.38889	.37707	1.000	−.7337	1.5114
		20 - 29	−1.32639*	.41912	.028	−2.5741	−.0787
		30 - 39	−.62222	.36730	1.000	−1.7157	.4712
	70+	40 - 49	−.63889	.38544	1.000	−1.7863	.5086
		50 - 59	−.57778	.36730	1.000	−1.6712	.5157
		60 - 69	−.38889	.37707	1.000	−1.5114	.7337
		30 - 39	−.50000	.24078	.590	−1.2168	.2168
		40 - 49	−.64286	.25924	.212	−1.4146	.1289
	20 - 29	50 - 59	−.63333	.24078	.140	−1.3501	.0835
		60 - 69	−.94118*	.25078	.004	−1.6878	−.1946
		70+	−.83333	.34467	.250	−1.8594	.1928
40. I am self-motivated		20 - 29	.50000	.24078	.590	−.2168	1.2168
		40 - 49	−.14286	.19911	1.000	−.7356	.4499
	30 - 39	50 - 59	−.13333	.17439	1.000	−.6525	.3858
		60 - 69	−.44118	.18797	.301	−1.0008	.1184
		70+	−.33333	.30205	1.000	−1.2325	.5659

Continued

	20 - 29	.64286	.25924	.212	−.1289	1.4146
	30 - 39	.14286	.19911	1.000	−.4499	.7356
40 - 49	50 - 59	.00952	.19911	1.000	−.5832	.6023
	60 - 69	−.29832	.21110	1.000	−.9268	.3301
	70+	−.19048	.31697	1.000	−1.1341	.7531
	20 - 29	.63333	.24078	.140	−.0835	1.3501
	30 - 39	.13333	.17439	1.000	−.3858	.6525
50 - 59	40 - 49	−.00952	.19911	1.000	−.6023	.5832
	60 - 69	−.30784	.18797	1.000	−.8674	.2517
	70+	−.20000	.30205	1.000	−1.0992	.6992
	20 - 29	.94118*	.25078	.004	.1946	1.6878
	30 - 39	.44118	.18797	.301	−.1184	1.0008
60 - 69	40 - 49	.29832	.21110	1.000	−.3301	.9268
	50 - 59	.30784	.18797	1.000	−.2517	.8674
	70+	.10784	.31009	1.000	−.8153	1.0310
	20 - 29	.83333	.34467	.250	−.1928	1.8594
	30 - 39	.33333	.30205	1.000	−.5659	1.2325
70+	40 - 49	.19048	.31697	1.000	−.7531	1.1341
	50 - 59	.20000	.30205	1.000	−.6992	1.0992
	60 - 69	−.10784	.31009	1.000	−1.0310	.8153

Note. *The mean difference is significant at the .05 level.

- Survey Question 40: I am self-motivated.

A One Way ANOVA of survey questions relating to perception regarding their use of Web 2.0 technologies in their courses based on number of years teaching in higher education was conducted. The results can be seen in **Table 56**.

As **Table 56** indicates, the *p*-values (Sig.) are .013, .004, .037, .531, .659, and .549 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' number of years teaching in higher education and perception regarding their use of Web 2.0 technologies in their courses. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' status and perception regarding their use of Web 2.0 technologies in their courses.

An additional One Way ANOVA of survey questions relating to perception regarding their use of Web 2.0 technologies in their courses based on number of years teaching at their university was conducted. The results can be seen in **Table 57**.

As **Table 57** indicates, the *p*-values (Sig.) are .231, .304, .397, .982, .838, and .077 respectively. When the *p*-value is less than the commonly accepted .05 value, the null hypothesis is rejected. In this case all of the *p*-values are greater than .05. That said, we do not reject the null hypothesis. There was no significant difference between faculty members' number of years teaching at their university and perception regarding their use of Web 2.0 technologies in their courses. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' status and perception regarding their use of Web 2.0 technologies in their courses.

A third One Way ANOVA of survey questions relating to perception regarding their use of Web 2.0 technologies in their courses based on employment status was conducted. The results can be seen in **Table 58**.

As **Table 58** indicates, the *p*-values (Sig.) are .101, .879, .578, .303, .407, .681, and .698 respectively. When the *p*-value is less than the commonly accepted .05 value, we reject the null hypothesis. In this case all of the *p*-values are greater than .05. That said, the null hypothesis is not rejected. There was no significant difference between faculty members' employment status and perception regarding their use of Web 2.0 technologies in their courses. Therefore, the null hypothesis is accepted. There is no relationship between faculty members' status and perception regarding their use of Web 2.0 technologies in their courses.

A Bonferroni multiple comparison test was conducted on number of years teaching in higher education to see which pairs were significantly different. The test can be seen in **Table 59**.

Table 59 revealed that there are a few pairs of means that are significantly different from each other. Faculty members who have been teaching in higher education for 1 - 5 years believed that using Web 2.0 technologies improves the quality of their teaching significantly more than those faculty members who have been teaching in higher education for 21+ years. Those faculty members who worked in higher education for 1 - 5 years believed that using Web 2.0 technologies enhances the student's experiences in the classroom significantly more than the faculty members who have taught in higher education for 11 - 15 years and those faculty members who have taught in higher education 21+ years. The faculty members who have taught in higher education for 6 - 10 years believed that learning to use Web 2.0 technologies is beneficial to them as a faculty member in higher education significantly more than those faculty members who have taught in higher education for 21+ years.

Summary

The purpose of this study was to examine faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods in programs at a higher education institutions to establish if relationships prevail in their delivery of courses through the use of Web 2.0 technologies compared with traditional

Table 56.
One way ANOVA test based on years teaching in higher education.

		Sum of Squares	df	Mean Square	F	Sig.
22. Using Web 2.0 technologies improves the quality of my teaching	Between Groups	9.094	4	2.274	3.281	.013
	Within Groups	119.894	173	.693		
	Total	128.989	177			
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	Between Groups	10.641	4	2.660	3.972	.004
	Within Groups	115.854	173	.670		
	Total	126.494	177			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	7.856	4	1.964	2.609	.037
	Within Groups	130.239	173	.753		
	Total	138.096	177			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	3.074	4	.769	.794	.531
	Within Groups	167.487	173	.968		
	Total	170.562	177			
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	Between Groups	2.591	4	.648	.606	.659
	Within Groups	183.714	172	1.068		
	Total	186.305	176			
40. I am self-motivated	Between Groups	2.232	4	.558	.765	.549
	Within Groups	125.508	172	.730		
	Total	127.740	176			

Table 57.
One way ANOVA test based on years teaching at your university.

		Sum of Squares	df	Mean Square	F	Sig.
22. Using Web 2.0 technologies improves the quality of my teaching	Between Groups	4.084	4	1.021	1.414	.231
	Within Groups	124.905	173	.722		
	Total	128.989	177			
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	Between Groups	3.472	4	.868	1.221	.304
	Within Groups	123.022	173	.711		
	Total	126.494	177			
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	3.189	4	.797	1.022	.397
	Within Groups	134.907	173	.780		
	Total	138.096	177			
26. My students expect me to use Web 2.0 technology for instruction	Between Groups	.398	4	.099	.101	.982
	Within Groups	170.164	173	.984		
	Total	170.562	177			
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	Between Groups	1.541	4	.385	.359	.838
	Within Groups	184.764	172	1.074		
	Total	186.305	176			
40. I am self-motivated	Between Groups	6.078	4	1.519	2.148	.077
	Within Groups	121.662	172	.707		
	Total	127.740	176			

classroom delivery of courses; their overall satisfaction; the level of faculty development programs available; and their perceived effectiveness and impact of faculty development and issues and barriers affecting technology integration. This study also examined the influence of gender, age, and employment status on faculty members' perceptions of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods.

With technology continuing to expand at a rapid rate and being ever changing (Rockart, Earl, & Ross, 1996), trying to constantly be on the cutting edge of technology in higher education is an interesting paradigm. "In some schools, the Internet and other technologies are being integrated at the institutional level; with a student's complete academic experience—from application through registration and tuition payment, to final examination and course grade-occurring on-line" (Gottwald, 2005: p. 2). The rapidly growing technology infrastructure at institutions of higher education to meet the instructional and research needs of faculty, staff, and students (Alsaady, 2007) is making faculty development with the use of technology a requirement. Between 2002 and 2006, online learning increased by 21.5% while the entire higher education student body only increased by 1.5% (Yates, 2010).

This study investigated faculty members' perception of Web 2.0 technologies on teaching and learning in higher education compared to traditional classroom teaching methods. The study will also examine the effects of gender and age variables on their adoption of technological approaches to teaching. The

Table 58.
One way ANOVA test based on employment status.

		Sum of Squares	df	Mean Square	F	Sig.
22. Using Web 2.0 technologies improves the quality of my teaching	Between Groups	7.705	6	1.284	1.802	.101
	Within Groups	121.154	170	.713		
	Total	128.859	176			
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	Between Groups	1.755	6	.292	.399	.879
	Within Groups	124.483	170	.732		
	Total	126.237	176			
25. My students expect me to use Web 2.0 technology for instruction	Between Groups	4.631	6	.772	.791	.578
	Within Groups	165.922	170	.976		
	Total	170.554	176			
26. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	Between Groups	5.646	6	.941	1.212	.303
	Within Groups	132.015	170	.777		
	Total	137.661	176			
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method	Between Groups	6.541	6	1.090	1.031	.407
	Within Groups	179.764	170	1.057		
	Total	186.305	176			
40. I am self-motivated	Between Groups	2.825	6	.471	.641	.698
	Within Groups	124.916	170	.735		
	Total	127.740	176			

problem with advanced technological utilization by faculty in higher education is that higher education institutions are installing state of the art technology into classrooms and faculty members are expected to infuse this technology into their teaching, but only about 20% of faculty members feel that they are prepared to comply (Chuang, 2004). Internet usage among 18 - 29 years old college student is at a staggering 93% and "44% of the nearly 53 million Internet users produce and share digital content online" (Weyant & Gardner, 2010, p. 68). Not only are these students ahead of the faculty when it comes to technical skills and utilization, but the corporations that are waiting for these students to graduate are expecting familiarity of Web 2.0 technologies (Weyant & Gardner, 2010).

With technology continuing to expand at a rapid rate and being ever changing (Rockart et al., 1996), just keeping up with it can be a daunting task in itself. "In some schools, the Internet and other technologies are being integrated at the institutional level; with a student's complete academic experience—from application through registration and tuition payment, to final examination and course grade-occurring on-line" (Gottwald, 2005: p. 2). The rapidly growing technology infrastructure at institutions of higher education to meet the instructional and research needs of faculty, staff, and students (Alsaady, 2007) is making faculty development with the use of technology a requirement. Between 2002 and 2006, online learning increased by 21.5% while the entire higher education student body only increased by 1.5% (Yates, 2010). These are pretty alarming statistics and with Web 3.0 moving fast upon us, institutions of higher education need to put improving teaching and learning through the use of Web 2.0 technologies as a priority in their strategic plans so faculty members can learn not only how to use Web 2.0 technologies, but how to successfully infuse Web 2.0 technologies into their curriculums to improve learning.

In order for faculty members' to remain competitive and sustainable in this digital age, professional development on the use of technology and how to infuse technology into course curricula is a requirement. Identifying the aspects of effectiveness and potential impacts of faculty development will recognize areas of success and failure and will contribute to improving the content of faculty development (Al-Washahi, 2007). The results are expected to empower the faculty members to actively infuse technology into their curriculum and classroom, thus providing a state of the art experience for the student community at institutions of higher education.

Discussion of Findings

Of 177 faculty members who participated in this research study, the majority were male adjunct faculty members in the age range of either 30 - 39 or 50 - 59 who has been teaching in higher education for either 1 - 5 years or 21+ years and had been teaching at their university for 1 - 5 years. In addition, the majority taught undergraduate course utilizing the traditional face-to-face teaching method and more surprisingly, traditional face-to-face teaching method was the preferred teaching method. When asked to rate their technical proficiency level, the majority of the respondents felt they were either somewhat proficient or proficient; and when the respondents were asked to rate their technical proficiency level specifically to the Web 2.0 technologies that their University offers, the majority felt they were somewhat proficient. Lastly, the majority of the respondents learn best by doing.

Based on the results from the current level of Web 2.0 technologies use at their university, adjunct faculty members were the most to have never utilized all of the Web 2.0 technologies except for YouTube where the adjunct faculty members sometimes utilized that technology; professors often utilized Blog, Skype and Twitter; assistant professors often utilized YouTube and very often utilized Podcast.

Sixty-five or 36.7% of the faculty members agreed that using Web 2.0 technologies improves the quality of teaching and 81 or 45.8% of the faculty members agreed that using Web 2.0 technologies enhances student's experiences. Close to 40% of the participants remained neutral regarding the level of ease to learn to use Web 2.0 technologies. Almost half of the faculty members (46.9%) agreed that learning to use Web 2.0 tech-

Table 59.
Bonferroni multiple comparisons for years teaching in higher education.

Dependent Variable	(I) Please select the number of years you have been teaching in higher education	(J) Please select the number of years you have been teaching in higher education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
22. Using Web 2.0 technologies improves the quality of my teaching	1 - 5	6 - 10	.08238	.18249	1.000	−.4365	.6013
		11 - 15	.32298	.19954	1.000	−.2444	.8904
		16 - 20	.29051	.21579	1.000	−.3231	.9041
		21+	.58597*	.17555	.010	.0868	1.0851
	6 - 10	1 - 5	−.08238	.18249	1.000	−.6013	.4365
		11 - 15	.24060	.20734	1.000	−.3490	.8302
		16 - 20	.20813	.22302	1.000	−.4260	.8423
		21+	.50359	.18436	.070	−.0206	1.0278
	11 - 15	1 - 5	−.32298	.19954	1.000	−.8904	.2444
		6 - 10	−.24060	.20734	1.000	−.8302	.3490
		16 - 20	−.03247	.23718	1.000	−.7069	.6419
		21+	.26299	.20125	1.000	−.3093	.8352
	16 - 20	1 - 5	−.29051	.21579	1.000	−.9041	.3231
		6 - 10	−.20813	.22302	1.000	−.8423	.4260
		11 - 15	.03247	.23718	1.000	−.6419	.7069
		21+	.29545	.21738	1.000	−.3226	.9136
	21+	1 - 5	−.58597*	.17555	.010	−1.0851	−.0868
		6 - 10	−.50359	.18436	.070	−1.0278	.0206
		11 - 15	−.26299	.20125	1.000	−.8352	.3093
		16 - 20	−.29545	.21738	1.000	−.9136	.3226
23. Using Web 2.0 technologies enhances the student's experiences in the classroom	1 - 5	6 - 10	.18192	.17939	1.000	−.3282	.6920
		11 - 15	.58230*	.19615	.034	.0245	1.1400
		16 - 20	−.01186	.21213	1.000	−.6150	.5913
		21+	.51087*	.17256	.035	.0202	1.0015
	6 - 10	1 - 5	−.18192	.17939	1.000	−.6920	.3282
		11 - 15	.40038	.20381	.511	−.1792	.9799
		16 - 20	−.19378	.21923	1.000	−.8172	.4296
		21+	.32895	.18123	.712	−.1864	.8443
	11 - 15	1 - 5	−.58230*	.19615	.034	−1.1400	−.0245
		6 - 10	−.40038	.20381	.511	−.9799	.1792
		16 - 20	−.59416	.23315	.117	−1.2571	.0688
		21+	−.07143	.19783	1.000	−.6340	.4911
	16 - 20	1 - 5	.01186	.21213	1.000	−.5913	.6150
		6 - 10	.19378	.21923	1.000	−.4296	.8172
		11 - 15	.59416	.23315	.117	−.0688	1.2571
		21+	.52273	.21368	.154	−.0849	1.1303
	21+	1 - 5	−.51087*	.17256	.035	−1.0015	−.0202
		6 - 10	−.32895	.18123	.712	−.8443	.1864
		11 - 15	.07143	.19783	1.000	−.4911	.6340
		16 - 20	−.52273	.21368	.154	−1.1303	.0849
25. Learning to use Web 2.0 technologies is beneficial to me as a faculty member in higher education	1 - 5	6 - 10	−.11670	.19020	1.000	−.6575	.4241
		11 - 15	.26863	.20797	1.000	−.3227	.8600
		16 - 20	.16798	.22491	1.000	−.4715	.8075
		21+	.44071	.18296	.171	−.0795	.9610
	6 - 10	1 - 5	.11670	.19020	1.000	−.4241	.6575
		11 - 15	.38534	.21610	.763	−.2291	.9998
		16 - 20	.28469	.23245	1.000	−.3763	.9456
		21+	.55742*	.19215	.042	.0110	1.1038
	11 - 15	1 - 5	−.26863	.20797	1.000	−.8600	.3227
		6 - 10	−.38534	.21610	.763	−.9998	.2291
		16 - 20	−.10065	.24720	1.000	−.8035	.6023
		21+	.17208	.20975	1.000	−.4244	.7685

Continued

		1 - 5	−.16798	.22491	1.000	−.8075	.4715
	16 - 20	6 - 10	−.28469	.23245	1.000	−.9456	.3763
		11 - 15	.10065	.24720	1.000	−.6023	.8035
		21+	.27273	.22656	1.000	−.3715	.9169
		1 - 5	−.44071	.18296	.171	−.9610	.0795
	21+	6 - 10	−.55742*	.19215	.042	−1.1038	−.0110
		11 - 15	−.17208	.20975	1.000	−.7685	.4244
		16 - 20	−.27273	.22656	1.000	−.9169	.3715
		6 - 10	−.20252	.21569	1.000	−.8158	.4108
	1 - 5	11 - 15	−.05590	.23584	1.000	−.7265	.6147
		16 - 20	.04150	.25505	1.000	−.6837	.7667
		21+	.17787	.20748	1.000	−.4121	.7678
		1 - 5	.20252	.21569	1.000	−.4108	.8158
	6 - 10	11 - 15	.14662	.24506	1.000	−.5502	.8434
		16 - 20	.24402	.26360	1.000	−.5055	.9936
		21+	.38038	.21790	.826	−.2392	1.0000
		1 - 5	.05590	.23584	1.000	−.6147	.7265
26. My students expect me to use Web 2.0 technology for instruction	11 - 15	6 - 10	−.14662	.24506	1.000	−.8434	.5502
		16 - 20	.09740	.28033	1.000	−.6997	.8945
		21+	.23377	.23786	1.000	−.4426	.9101
		1 - 5	−.04150	.25505	1.000	−.7667	.6837
	16 - 20	6 - 10	−.24402	.26360	1.000	−.9936	.5055
		11 - 15	−.09740	.28033	1.000	−.8945	.6997
		21+	.13636	.25692	1.000	−.5942	.8669
		1 - 5	−.17787	.20748	1.000	−.7678	.4121
	21+	6 - 10	−.38038	.21790	.826	−1.0000	.2392
		11 - 15	−.23377	.23786	1.000	−.9101	.4426
		16 - 20	−.13636	.25692	1.000	−.8669	.5942
		6 - 10	−.22540	.22656	1.000	−.8697	.4189
	1 - 5	11 - 15	.14010	.25056	1.000	−.5724	.8526
		16 - 20	−.03162	.26790	1.000	−.7934	.7302
		21+	.05929	.21793	1.000	−.5604	.6790
		1 - 5	.22540	.22656	1.000	−.4189	.8697
	6 - 10	11 - 15	.36550	.26013	1.000	−.3742	1.1052
		16 - 20	.19378	.27687	1.000	−.5936	.9811
		21+	.28469	.22887	1.000	−.3662	.9355
27. There are no differences in what I taught utilizing Web 2.0 technologies versus the traditional classroom method		1 - 5	−.14010	.25056	1.000	−.8526	.5724
	11 - 15	6 - 10	−.36550	.26013	1.000	−1.1052	.3742
		16 - 20	−.17172	.29683	1.000	−1.0158	.6724
		21+	−.08081	.25266	1.000	−.7993	.6377
		1 - 5	.03162	.26790	1.000	−.7302	.7934
	16 - 20	6 - 10	−.19378	.27687	1.000	−.9811	.5936
		11 - 15	.17172	.29683	1.000	−.6724	1.0158
		21+	.09091	.26986	1.000	−.6765	.8583
		1 - 5	−.05929	.21793	1.000	−.6790	.5604
	21+	6 - 10	−.28469	.22887	1.000	−.9355	.3662
		11 - 15	.08081	.25266	1.000	−.6377	.7993
		16 - 20	−.09091	.26986	1.000	−.8583	.6765
		6 - 10	−.01373	.18726	1.000	−.5462	.5188
	1 - 5	11 - 15	.10225	.20710	1.000	−.4867	.6912
		16 - 20	−.02569	.22143	1.000	−.6554	.6040
		21+	−.23024	.18013	1.000	−.7425	.2820
40. I am self-motivated		1 - 5	.01373	.18726	1.000	−.5188	.5462
	6 - 10	11 - 15	.11598	.21501	1.000	−.4954	.7274
		16 - 20	−.01196	.22885	1.000	−.6627	.6388
		21+	−.21651	.18917	1.000	−.7545	.3214

Continued

11 - 15	1 - 5	−.10225	.20710	1.000	−.6912	.4867
	6 - 10	−.11598	.21501	1.000	−.7274	.4954
	16 - 20	−.12795	.24534	1.000	−.8256	.5697
	21+	−.33249	.20883	1.000	−.9263	.2614
16 - 20	1 - 5	.02569	.22143	1.000	−.6040	.6554
	6 - 10	.01196	.22885	1.000	−.6388	.6627
	11 - 15	.12795	.24534	1.000	−.5697	.8256
	21+	−.20455	.22305	1.000	−.8388	.4297
21+	1 - 5	.23024	.18013	1.000	−.2820	.7425
	6 - 10	.21651	.18917	1.000	−.3214	.7545
	11 - 15	.33249	.20883	1.000	−.2614	.9263
	16 - 20	.20455	.22305	1.000	−.4297	.8388

Note. *The mean difference is significant at the .05 level.

nologies is beneficial to them, however, only 26% of the respondents felt that their students expected them to use Web 2.0 technology for education.

The majority of the respondents felt that there are differences in what they taught utilizing Web 2.0 technologies versus the traditional classroom method and infusing Web 2.0 technologies within their course content was not a requirement for the majority of the participants. With regards to faculty development opportunities, the majority of the participants felt that there were many faculty development opportunities available to learn how to use Web 2.0 technologies and felt that there are many faculty development programs available while they were on campus. With regards to the varied proficiency levels of the faculty development programs and the effectiveness of the programs, the majority of the participants remained neutral. Not surprisingly, the majority of the participants agreed that they found it difficult to find the time to attend faculty development programs. The majority of the participants found it difficult to keep up with technology because it is constantly changing.

The majority of the participants agreed that students are far more advanced in technology than they are; however the majority felt that it does not take a long time to learn how to use Web 2.0 technologies. When it comes to incentives or reward programs, the majority of the participants felt that there were not many available to faculty who attend development programs on campus. The majority of the participants agreed that teaching courses utilizing Web 2.0 technologies provides more flexibility than with the traditional face-to-face method, and Almost half (86 or 48.6%) of the faculty participants agree that they are self-motivated and 61 or 34.5% of the faculty participants strongly agree that they are self-motivated.

Conclusion

Based on the non-parametric chi-squared test and the one-way ANOVA tests that were conducted in the previous chapter, the following conclusions can be made:

- There is a relationship between faculty members' perception of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom method.
- There is no relationship between faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies.
- There is no relationship between faculty members' perception of development programs affecting technology integration and their effectiveness.
- There is no relationship between faculty members' perception of the impact of the barriers affecting technology integration and the faculty members' ability to utilize Web 2.0 technologies.
- There is a relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses.
- There is a relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses.
- There is no relationship between faculty members' status and perception regarding their uses of Web 2.0 technologies in their courses.

Limitations

This research study was conducted using part time and full time faculty members teaching at a public university in the United States. Generalizations to faculty members in other colleges or universities may not be relevant.

Recommendations for Practice

Based on the conclusions above, recommendations for practice include having focus groups and lunch-and-learns to openly discuss the faculty members' perceptions of teaching college courses utilizing Web 2.0 technologies versus the traditional classroom method. In addition, providing one-on-one attention to the faculty members may help the faculty members work through their perceptions. Although there is no relationship between the faculty members' perception of the level of development programs and the creation of course content utilizing Web 2.0 technologies and no relationship between faculty members' perception of development programs affecting technology integration and their effectiveness, it would be advantageous for public universities to determine the requirement level of infusing Web 2.0 technologies into courses that their university will follow and then devise specific development programs to assist the faculty from beginner to expert level with input from the faculty members. The majority of the participants in this study agreed that they learn best by doing, so the programs need to be hands-on in order to be labeled as effective.

As the study found that there is a relationship between faculty members' gender and perception regarding their use of Web 2.0 technologies in their courses, public universities should create focus groups for males and females to understand the

difference between the male's perception and the female's perception. Reviewing the results with highest count indicates overall, the male faculty members had a higher rate on the lack of utilization with all Web 2.0 technologies while the female faculty members had a higher rate of utilization with Blogs, Facebook, Twitter and YouTube. As the study also found that there is a relationship between faculty members' age and perception regarding their use of Web 2.0 technologies in their courses, the focus groups should also be coordinated by age groups and the age groups who utilize Web 2.0 technologies more often should consider running the focus groups for the age groups who utilize Web 2.0 technologies the least. Reviewing the results with highest count indicates overall, participants in the age range of 60 - 69 have never utilized Blogs, Facebook, or Wiki; participants in the age range of 50 - 59 have never utilized Podcast, Second Life, Skype, Twitter or YouTube; participants in the age range of 40 - 49 very often utilize Twitter and Wiki; participants in the age range of 30 - 39 often utilize Blog, Facebook, Skype, Twitter, and YouTube; participants in the age range of 20 - 29 often utilize Second Life.

Recommendations for Future Research

The following recommendations are made for future research:

1) Whereas this study only included the faculty members' current employment status, future studies should develop a study to include the faculty members' department to determine the impact of the faculty members' academic department on the perception of Web 2.0 technologies.

2) Whereas this study only included public universities in the United States, future studies should develop a study to include all higher education institutions to determine the impact of the type of institution on the perception of Web 2.0 technologies.

3) Whereas this study included a One-Way Analysis of Variance (ANOVA), future research should include a Two-Way Analysis of Variance (ANOVA) to include two independent variables for additional statistical analysis.

4) Whereas this study included eight specific Web 2.0 technologies (Blogs, Facebook, Podcast, Second Life, Skype, Twitter, Wiki, and YouTube), future research should include discussion boards and journals and add course management systems such as Blackboard, Collaborate, Moodle, Prezi and Wimba as this was feedback received from the pilot study.

5) Whereas this study included a definition of terms and a neutral option in the survey, future research should include a definition of each Web 2.0 technology specified in the survey as well as an option that says "I don't know" as this was feedback received from the pilot study.

6) Whereas this study included any level of Web 2.0 technology use, future research should develop a study to compare a higher education institution that has a requirement to infuse Web 2.0 technologies within the faculty members' course content to one that does not have the requirement.

7) Whereas this study included adjuncts as the majority of the faculty participants, future research should focus on full time faculty participants as a comparison of results.

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REFERENCES

Alexander, B. (2008). Web 2.0 and emergent multiliteracies. *Theory into Practice, 47,* 150-160. doi:10.1080/00405840801992371

Alsaady, A. (2007). *Planning strategy and the use of information technology in higher education*: *A comparative analysis of two universities in Michigan*. Doctoral Dissertation, Minneapolis, MN: Capella University.

Al-Washahi, M. (2007). *The perceived effectiveness and impact of educational technology faculty development activities in the College of Education at Sultan Qaboos University*. Doctoral Dissertation, Athens, OH: Ohio University.

Anderson, P. (2007). *What is Web 2.0*? *Ideas*, *technologies and implications for education*. Bristol, JISC Technology and Standards Watch.

Baasandorj, D. (2010). *Faculty development program needs at Mongolian State Universities*: *Content and strategies*. Doctoral Dissertation, West Lafayette, IN: Purdue University.

Baker, R., Harrison, J., Thornton, B., & Yates, R. (2010). Podcasting in higher education: Does it make a difference? *American Journal of Business Education, 3,* 7-10.

Barnatt, C. (2009). Higher education 2.0. *International Journal of Management Education, 7,* 47-56. doi:10.3794/ijme

Chuang, H. (2004). *Sustainable faculty development*: *Issues in technology for teacher education*. Doctoral Dissertation, Ames, IA: Iowa State University.

Cooper, D., & Schindler, P. (2008). *Business research methods* (10th ed.). New York, McGraw-Hill/Irwin.

Creswell, J. (2009). *Research design*: *Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35,* 982-1003. doi:10.1287/mnsc.35.8.982

Dreher, C., Reiners, T., Dreher, N., & Dreher, H. (2009). Virtual worlds as a context suited for information systems education: Discussion of pedagogical experience and curriculum design with reference to second Life. *Journal of Information Systems Education, 20,* 211-224.

Facebook (2012). *Fact Sheet*. Retrieved from http://newsroom.fb.com/content/default.aspx?NewsAreaId=22

Fillion, G., Limayem, M., Laferrière, T., & Mantha, R. (2006). Integrating ICT into higher education: A study of onsite *vs* online students' perceptions. *Allied Academies International Conference*. *Academy of Educational Leadership*. *Proceedings, 11,* 7-10.

Fuller, M. (2011). *Social media in higher education*: *Building mutually beneficial student and institutional relationships through social media*. Master's Thesis, Johnson City, TN: East Tennessee State University.

Gilmore, S., & Warren, S. (2007). Emotion online: Experiences of teaching in a virtual learning environment. *Human Relations, 60,* 581-604. doi:10.1177/0018726707078351

Gottwald, W. D. (2005). *A comparison of student perceptions regarding online courses and traditional courses*: *A case study*. Doctoral

Dissertation, Detroit, MI: Wayne State University.
Grainger, R., & Tolhurst, D. (2005). Organisational factors affecting teachers' use and perception of information & communications technology. *In Proceedings of the* 2005 *south east asia regional computer science confederation* (*Searcc*) *conference* (pp. 13-22), Darlinghurst, Australian Computer Society, Inc.
Halawi, L., Pires, S., & McCarthy, R. (2009). An evaluation of e-learning on the basis of bloom's taxonomy: An exploratory study. *Journal of Education for Business, 84,* 374-380. doi:10.3200/JOEB.84.6.374-380
Harris, A., & Rea, A. (2009). Web 2.0 and virtual world technologies: A growing impact on is education. *Journal of Information Systems Education, 20,* 137-144.
Hazari, S., North, A., & Moreland, D. (2009). Investigating pedagogical value of wiki technology. *Journal of Information Systems Education, 20,* 187-198.
Hikmet, N., Taylor, E., & Davis, C. (2008). The student productivity paradox: Technology mediated learning in schools. *Communications of the ACM, 51,* 128-131. doi:10.1145/1378727.1389974
International Society for Technology in Education (ISTE) (2008). *NETS for teachers 2008.* http://www.iste.org/docs/pdfs/nets-t-standards.pdf?sfvrsn=2
King, J., Gurbaxani, V., Kraemer, K. L., McFarlan, F., Raman, K. S., & Yap, C. S. (1994). Institutional factors in information technology innovation. *Information Systems Research, 5,* 139-169. doi:10.1287/isre.5.2.139
Laudon, K. C., & Laudon, J. P. (2009). *Essentials of Management Information Systems*, *Eighth Edition*. Upper Saddle River, NJ: Pearson Education.
Lee, G. (2010). *Second Life as an educational platform for collaborative learning by the millennial generation at a laptop university*. Doctoral Dissertation, Minneapolis, MN: Walden University.
Li, L., & Pitts, J. (2009). Does it really matter? Using virtual office hours to enhance student-faculty interaction. *Journal of Information Systems Education, 20,* 175-185.
Lim, W. M., & Ting, D. H. (2012). E-shopping: An analysis of the technology acceptance model. *Modern Applied Science, 6,* 49-62. doi:10.5539/mas.v6n4p49
McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology, 26,* 729-740.
Newman, J. (2007). *The effects of synchronous voice and video tools on acceptance of online communications by students in undergraduate technology courses*. Doctoral Dissertation, Reno, NV: University of Nevada.
Partnership for 21st Century Skills (2011). *FAQ*. http://www.p21.org/overview/p21-faq
Partnerships for 21st Century Skills (2011). *Framework for* 21st *Century Learning*. Retrieved from http://www.p21.org/storage/documents/1.__p21_framework_2-pager.pdf
Partnerships for 21st Century Skills (2011). *State Initiatives*. Retrieved from http://www.p21.org/state-initiatives
Rich, M. (2008). Millennial students and technology choices for information searching. *Electronic Journal of Business Research Methods, 6,* 73-76.
Rockart, J. F., Earl, M. J., & Ross, J. W. (1996). Eight imperatives for the new IT organization. *Sloan Management Review, 38,* 43-55.
Robey, D., & Boudreau, M. (1999). Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications. *Information Systems Research, 10,* 167-185. doi:10.5539/mas.v6n4p49
Sahin, I., & Thompson, A. (2006). Using Rogers' theory to interpret instructional computer use by COE faculty. *Journal of Research on Technology in Education, 39,* 81-104.
Sibbet, D. (1997). 75 years of management ideas and practice: 1922-1997. *Harvard Business Review, 75,* 2-12.
Swanson, R. A., & Holton III., E. F. (2005). *Research in organizations: Foundations and methods of inquiry*. San Francisco, CA: Berrett-Koehler Publications.
Thompson, A. D. (2005). Scientifically based research: Establishing a research agenda for the technology in teacher education community. *Journal of Research on Technology in Education, 37,* 331-337.
Velez, A. (2010). *Creating and sustaining virtual communities of practice by operationalizing constructs of preparation*, *collegiality*, *and professional development*. Doctoral Dissertation, Minneapolis, MN: Capella University.
Wang, Y., & Braman, J. (2009). Extending the classroom through second life. *Journal of Information Systems Education, 20,* 235-247.
Wankel, C. (2009). Management education using social media. *Organization Management Journal, 6,* 251-262. doi:10.1057/omj.2009.34
Weyant, L. E., & Gardner, C. L. (2010). Web 2.0 applications usages: Implications for management education. *Journal of Business*, *Society & Government, 2,* 67-78.
Williams, J., & Chinn, S. (2009). Using web 2.0 to support the active learning experience. *Journal of Information Systems Education, 20,* 165-174.
Yates, S. (2009). *Current faculty development practices for alternative delivery systems in Christian higher education institutions*: *A qualitative study*. Doctoral Dissertation, Louisville, KY: The Southern Baptist Theological Seminary.

