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ENABLING CHANGE: FACULTY AND STUDENT PERCEPTIONS OF BLENDED  
LEARNING

by

RONALD WASHINGTON

A DISSERTATION

Presented to the Faculty of the University of the Incarnate Word  
in partial fulfillment of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF THE INCARNATE WORD

December 2016

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Ronald Washington

## ENABLING CHANGE: FACULTY AND STUDENT PERCEPTIONS OF BLENDED LEARNING

Ronald Washington, PhD

University of the Incarnate Word, 2016

The philosopher Plato in his Seventh Epistle argued that the technology of writing is an insufficient means of society conveying knowledge and obtaining truth (Neel, 1988). Many insights from his rhetorical works however are etched in history by this technology. As society moves further into the information age, the relevance of blended learning in higher education is taking on greater significance (Garrison & Vaughan, 2008). Higher education institutions are on the verge of another significant paradigm shift in the dissemination of knowledge and truth. Understanding the shift to new computer-mediated means of knowledge delivery through blended learning experiences requires an understanding of the perceptions held by both the instructor and student.

This quantitative research study used a survey questionnaire to obtain feedback from faculty and students at a private liberal arts university on their perceptions of the use, frequency, readiness, and satisfaction with web-based technology in a blended learning environment. To obtain greater insight to student and faculty perceptions, quantitative and qualitative data was collected through an online survey distributed to faculty and students during the spring semester of 2016. Descriptive data was analyzed using IBM's SPSS statistical tool and reported out.

Results of this study indicate close agreement of student and faculty on perceptions of satisfaction with the frequency, use, and satisfaction with the web-based tools used in the course

of a blended learning class. There is however, a significant difference in the way faculty perceived their preparedness with web-based technology used in the classroom and how students perceived faculty's preparedness.

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## **Chapter 1: Changing Perceptions of Higher Education**

### **Context of the Study**

The demographic makeup of universities today is changing in some not so surprising ways. Snyder and Dillow (2012) reported in the National Center for Education Statistics, Digest of Education Statistics, that the number of people 25 years of age and older enrolling in college courses outpaced that of those younger than 25 years of age. Individuals 25 and over enrolling in four-year universities rose by 42% between 2000 and 2010. Along with the increase of older adults enrolling in higher education institutions, the number of female enrollees at the post baccalaureate level has also increased. Between the period 2000 and 2010 the number of female students in post baccalaureate programs increased by 62%. Many of these students are returning to school after leaving the workforce in search of greater work-life balance.

Another noticeable demographic change in American universities is the number of enrolling Hispanic and African American students along with military veterans with disabilities. Hispanic enrollments have increased from 3% to 13%. African American enrollment has increased from 9% to 14% in undergraduate programs during this same period. The growing number of older members of society returning to college and an increasing number of minority citizens living in the United States attending university is reshaping the demographics of higher education. These new demographic groups in higher education seek learning opportunities for personal growth or understanding while society promotes learning as a means of elevating society as a whole (Merriam, Caffarella, & Baumgartner, 2007). These demographic changes are also reflected in government data collected on the educational obtainment of United States citizens.

Based on U.S. Census Bureau (2013) Educational Attainment data from 1975 to 2014, the number of women who obtained a high-school diploma or completed college has outpaced the number of men over the same period by more than 7%. At the end of the Vietnam War in 1975, 18.7% of women of all races obtained a high-school diploma or completed a college degree. During that same period, 25.1% of men identified as having completed a high-school diploma or college level degree. By 1995, 24.9% of women as compared to 24.5% of men held a high school diploma or college degree. As of 2014, data collected on the obtainment of education in the United States indicates that 37.2% of women are likely to have a high school diplomas or college degrees as compared to 30.2% of their male counterparts. Unfortunately, societal perceptions of women's roles have not kept pace with their changing roles and academic advancements in society.

Women's roles in the home have largely gone unchanged though many are now in the workforce. In a qualitative study of women who have obtained higher levels of academic achievement and professional success, Lovejoy and Stone (2012) found that division of labor within the household remained largely unchanged. Commitments to work and family resulted in many women in the study leaving successful high-level positions for greater work-life balance. When returning to work, many of these women pursued retraining and certification through higher education. Participants in the study identified more autonomy, flexibility in time, and location as an expectation in their higher education experience. Blended learning supports these conditions for learning by incorporating methods of computer-mediated communication into the face-to-face experience. In addition, blended experiences can enable, enhance, or transform the characteristics of space, time, fidelity and humanness in the learning experience (Graham, 2006).

Computer-mediated communication has been defined as the communication made possible between two or more individuals utilizing two or more electronic devices (McQuail, 2005). For all computer-mediated methods of communication occurring in society today, we still have very little understanding of how this method of communication is changing the dynamics of our relationship with others. This is particularly true in blended learning environments in higher education. Computer-mediated communication allows an individual to be a member of a community yet allows them to maintain some level of anonymity within that community (Turkle, 2011). Challenges can arise within the blended learning environment based upon the familiarity of instructors and students with the tools used. Their satisfaction with the supporting infrastructure and perceptions of usefulness can all play a role in their perceptions of the learning experience. Exploring faculty and student perceptions of their blended learning experience with web-based technology provides valuable and comparable insights that can be used to improve the experience. Student and faculty perceptions of the blended experience and supporting computer-mediated modalities can directly influence learning in the community of blended learners in three important ways.

Initial perceptions can influence faculty's ability to facilitate a very dynamic learning environment designed to facilitate discourse using different computer-mediated modalities. These perceptions effect in the blended environment in a way that supports or detracts from the social, cognitive, and teacher presence necessary to facilitate discourse and the sharing of meaning within the community of learners (Garrison & Vaughan, 2008). Secondly, student and faculty perceptions of the web-based technologies and their proficiency with those tools can create or restrict open communication in a risk-free, collaborative environment. How students perceive faculty's ability to use web-based technology and the support given to both students and

faculty in the learning process is vital to the successful implementation of blended learning processes (Hoffman, 2008). Finally, student and faculty perceptions of whether they are truly learning in this environment is derived from those cognitive triggers of exploration, integration and resolution (Garrison & Vaughan, 2008). Student and faculty perceptions of the blended learning experience ultimately affect the community of inquiry designed to stimulate discourse in a dynamic and pedagogically diverse learning environment.

### **Statement of the Problem**

The ubiquitous nature of technology in higher education today is forcing academic developers and instructional designers to reexamine their existing delivery methods (Donnelly & McAvinia, 2012). Technological advancement is also reshaping learner perceptions of how their learning experience should meet their needs. The way institutions brand themselves in the future will depend heavily on how they respond to the shift to a more flexible and interactive educational experience (Garrison & Vaughan, 2008). Unfortunately, higher education institutes have been slow to adopt or settle on the blended learning instructional method. Higher education institutions are now faced with the considerable academic challenge of defining a quality blended learning experience in higher education (McConnell, 2006).

Those institutions that fail to adopt new methods for providing student-centered educational opportunities for a changing demographic that reduces the cost of education and increases retention will likely find the public support on which they presently depend rapidly deteriorating (Bacow, Bowen, Guthrie, Lack, & Long, 2012). There were no studies found in the literature that simultaneously compared faculty and student perceptions of their blended learning experience at the undergraduate, masters, or doctoral academic levels. This study seeks to



address that gap in literature by determining if a significant difference exists between student and faculty perceptions of blended learning at a private liberal arts institution in South Texas.

### **Purpose of the Study**

The purpose of this quantitative survey research study is to explore the possibility of a statistically significant difference existing between faculty and student perceptions of blended learning usage, frequency, readiness and overall satisfaction in blended learning courses at a private liberal arts university in South Texas. Earlier definitions broadly defined blended learning as a combination of modalities or delivery methods (Orey, 2002; Rooney, 2003; Singh & Reed, 2001). Other definitions described blended learning as a combination of instruction methods or simply a combination of face-to-face and online instruction (Ward & LaBranche, 2003; Young, 2002). These definitions proved insufficient in scope for this research. Time designations placed on the amount of face-to-face or online interaction in the delivery of instruction did not adequately address the significance of computer-mediated modalities. For the purpose of this study, a holistic definition of blended learning was required. Graham (2006, p. 6) defines blended learning as the combination of face-to-face instruction with computer-mediated instruction. This succinct definition of blended learning consolidates use of the term technology under the umbrella of computer-mediated communication that can be synchronous or asynchronous and the use of traditional forms of instruction.

### **Research Hypothesis**

The generational and digital divide that exists between students and faculty is evident in their academic experience and preference for a particular technology in the course of instruction (Masie, 2006). Computer-mediated communication in a blended learning environment provides an array of new web-based learning technologies that can be used to address course design and

facilitation issues and open new lines of discourse within a community of learners. The challenge in determining which learning technology is best suited to meet the learning objective presented by faculty and student's preference of delivery method can exacerbate the learning experience for both. Ultimately, as Peachey (2012) suggests, no engagement exists between student and faculty in any online or blended environment unless both are motivated to logon.

Throughout the literature, student and faculty perceptions of the use, frequency, readiness, and satisfaction with blended learning experiences are often tested mutually exclusive of each other when studied (Guy & Wishart, 2010; Kirschner, Strijbos, Kreijns, & Beers, 2004; Ng, 2009;). Little is known about how these two groups perceive the other's experience in a liberal arts institution whose mission is to provide an educational opportunity for first generation students. This research hypothesized that no significant difference existed between student and faculty perceptions of their blended learning experience. This research sought to determine if there was a significant difference in the way students and faculty, at the institution studied, perceived the blended learning experience based on perceptions of use, readiness, and satisfaction.

### **Research Questions**

The purpose of this research study is to explore perceptual differences between faculty and student of the blended learning experience at the undergraduate and graduate academic levels as it relates to the use, frequency, readiness and satisfaction. The following questions are posed to the community of learners and faculty at a private liberal arts institution in South Texas.

Research question 1: Is there a statistically significant difference in student and faculty perceptions with the use of web-based technologies in course instruction?

Research question 2: Is there a statistically significant difference in student and faculty perceptions with the frequency web-based technologies are used in course instruction?

Research question 3: Is there a statistically significant difference in student and faculty perceptions of readiness to use web-based technologies in courses?

Research question 4: Is there a statistically significant difference in student and faculty overall satisfaction with web-based technology and course instruction?

### **Summary of Appropriate Methodology**

A quantitative methodology with supporting qualitative analysis was used to conduct this research using survey research design. The survey used in this research was developed based on an exhaustive review of literature in the field of blended learning. Two survey instrument questionnaires, one for students and the other for faculty were issued with the assistance of the Institution Research Department at the university being studied. Two questionnaires were produced with like questions for faculty and student participants. Quantitative responses were expanded upon with supporting qualitative questions. The questionnaire was structured in two-parts that consisted of six quantitative, three open-ended, and four demographic questions. Convenience sampling was used to identify both student and faculty populations in the research. After consent from the Institutional Review Board (IRB) and working closely with the Institutional Research team, the survey was constructed online for distribution through the university email service.

The survey listed eleven categories of web-based learning tools. Respondents were asked to select whether the web-based learning tool is used in courses they attend or instruct. If the answer was yes, they were asked to select the frequency that the tool was used. A Likert scale was used to measure student and faculty perceptions of satisfaction, use, and readiness with their

blended learning experience. Category responses ranged from being extremely dissatisfied on the low end to being extremely satisfied on the high end of the scale. Survey questions for faculty mirrored questions asked of students as they related to their perceptions of technical support, preparedness to use web-based learning tools, and frequency with web-based tool use.

After working with the Institutional Research Department to determine the population of faculty who have taught or are presently teaching a blended learning course, a determination of timing for distribution of the questionnaire was made and a link to the online research survey sent out. The online survey development tool SurveyMonkey was used to construct the questionnaire. The questionnaire included a statement of consent to ensure participants of their privacy and right to decline participation in the survey at any time.

Student participants included all those with an active institutional email account at the university. After working with the Institutional Research Department to determine the most appropriate time to release the student questionnaires, an email from the Institutional Research Department was sent to students covering the same questions asked of faculty in their survey. An initial consent form was placed on the first page of the questionnaire with privacy information and requesting consent for participation. Students could opt out of the questionnaire at that time or choose not to complete the questionnaire at any stage.

Analysis of quantitative data collected in this research, supported by qualitative data, was used to answer four research questions related to student and faculty perceptions of the blended learning experience. All statistical analysis of the quantitative data was collected through the online survey tool. Data was downloaded, extraneous data such as IP address and location, removed, and cleaned up using a Microsoft Excel spreadsheet to prepare the data for import into IBM's Statistical Package for Social Sciences (SPSS) tool. Once imported into SPSS, the data

was once again screened and frequency and descriptive analysis performed on the quantitative questions related to student and faculty perceptions.

Data from the questionnaire's open-ended questions for students and faculty were analyzed to capture descriptive themes developed from student and faculty responses. Open coding was used to analyze faculty and student responses that further explained the rating given to a quantitative question. Open coding consists of the analysis of segments of narrative data that summarize previously identified core concepts (Lichtman, 2012). A spreadsheet was used to organize inputs from the three open-ended questions within the student and faculty questionnaires. Core concepts were organized under the topic of the three open-ended questions asked on both questionnaires. Words were extracted from the brief responses provided and the properties of those statements used to identify the most commonly mentioned words and expressions for both groups to provide student and faculty descriptive data.

### **Theoretical Framework**

The theoretical framework used in this study was Community of Inquiry Theory (COI). This theoretical framework is mentioned throughout the literature in research on blended learning. Community of Inquiry is broadly defined as a recursive model in which an educational community or formally constituted group of individuals connect with the purpose and intent of working collaboratively toward an intended learning goal or outcome (Garrison & Vaughan, 2008). Three primary characteristics constitute the COI framework.

The first element within this framework is social presence. Social presence represents those factors that enhance, enrich, or transform risk-free collaboration within a community of inquiry (Garrison & Vaughn, 2008). Social presence directly relates to a desire of today's student

for access and flexibility. How course instruction either isolates or liberates the learner to collaborate freely with peers and instructors is of significant importance.

The next equally important element of COI is teaching presence. Teaching presence represents how faculty develop course structure, facilitation, and develop curriculum (Garrison, Vaughn, 2008). This implies institutional influences on which web-based learning technologies are used, accessed, and identify the technical support provided. Teacher presence is either enhanced or limited by infrastructure, technical support, and training of faculty.

Cognitive presence is the final element identified in the COI framework. This element represents the exchange of information, exploration and connection of ideas (Garrison, Vaughn, 2008), and speaks to the blended learning goal of an improved pedagogy for the 21st century learner. This study offers insight to administrators, faculty, and instructional designers into those factors that influence student and faculty perceptions of usage, frequency, readiness, and overall satisfaction with their blended learning experience.

### **Significance of the Study**

The use of the web-based technologies in postsecondary education has rapidly grown over the past fifteen-years (Chen, Lambert, & Guidry, 2010) leaving many institutions playing catch up in the areas of resources, infrastructure, and training of faculty. Demographic changes, the cost of education, and the pervasive use of technology in society mark a significant shift in higher education and knowledge delivery as well. Demographic changes in the student population will demand higher-education institutions focus more on flexibility and versatility of the learning environment.

Based on the (2014) National Center of Education Statistics (NCES) data, the higher education student has changed over the past decade. The number of students over 25 years of age

has increased at a faster rate of enrollment than other segments of the population. Projections are that by the year 2021 there will be a 13% increase in enrollment of students' 25 years of age or more. Many of these new enrollees are independent working adults and veterans. Improved learning effectiveness, convenience based access, and cost effectiveness are the main selling points for adoption of blended learning by most faculty and students with cost effectiveness being chief amongst them (Graham & Dziuban, 2008).

Between 2000 and 2013, the cost of higher education at all institutions rose 9% from \$27,000 to more than \$34,000 (NCES, 2014). Many institutions are now developing strategies to reduce costs by offering blended learning programs in their adult education programs.

Unfortunately, too many institutions take a less integrative approach by only blending their adult education programs (Hofmann, 2006). Blended learning courses can address issues with the cost of curriculum delivery and flexibility of the academic experience by bringing together traditional face-to-face and computer-mediated methods of instruction delivery. Upwards of 3.97 million individuals are projected to enroll into some form of online or blended learning. Understanding the differences in student and faculty perceptions of how web-based technology is being used in the blended environment, individual readiness, and satisfaction with blended courses is a productive and growing area of research (Bonk & Graham, 2006; Donnelly & McAvinia, 2012; Foote & Mixson-Brookshire, 2014; Hofmann, 2006).

### **Limitations of the Study**

This section identifies those limitations the researcher found in the process of conducting this study. As part of the research, the location selected for this study was at a private liberal arts university campus. This was viewed as a limiting factor based on the cost of conducting the study across a broader more geographically dispersed population in the South Texas area. In

conducting this research, the researcher was limited to the South Central region of Texas. Funding to engage other institutions with similar demographics was not feasible therefore limiting the research to a private liberal arts university offered the best opportunity to conduct the research. This limitation affects two very important aspects of the demographic collection of data. First, the institution studied has a predominately Hispanic population of students. During the 2013–2014 school year, the number of Hispanic students represented 59% of the student population. Of the 6,241 main campus students, 61% are female. While these are limitations, results from this study can be used in areas of the nation where Hispanics and female students represent the majority of the student body. Another limitation of the study was the ability to collect data in a manner that would garner the greatest response rate.

Response rates to questionnaires are often low, provide only a snapshot of information, and often elicit socially desirable responses (Patten, 2011). Throughout the year, the university is required to produce data for academic and government entities. Timing and distribution of the survey used in this study was limited by participant schedules and the distribution of the survey in conjunction with other institutional surveys produced by the university and sent out close to or during the same time.

At the institution studied, Blackboard learning management systems are the web-based learning technology provided at no cost by the institution in the delivery of course instruction. The lack of diversity in tools offered by the university at no cost maybe a factor in the preference for a particular learning technology by faculty or students.

### **Definition of Terms**

As an emerging pedagogical form of instruction, blended learning models emerge rapidly with less consensus on their actual definition within the literature. The terms used in this research



hold the greatest consensus amongst researchers who are studying the transformative nature of these systems in classroom instruction in the literature.

- 1) Blended-Learning: Blended learning systems combine face-to-face instruction with computer-mediated instruction (Graham, 2006)
- 2) Computer-Mediated Communication (CMC): The communication made possible between two or more individuals utilizing two or more electronic devices (McQuail, 2005).
- 3) Cues-Filtered-Out: Group of theories with the premise that CMC without verbal cues blocks social functions that normally use them (Culnan & Markus, 1987)
- 4) E-learning: Internet-based teaching system used in the process of learning online (Dictionary.com, 2014)
- 5) Interactive Learning Online: Pedagogical method that incorporates the use of digital technology and social media into the course design (Bacow et al., 2012)
- 6) Learning Management Systems: Software application that automates and centralizes the administration of course delivery and tracking (Ellis, 2009)
- 7) Media-richness theory: Argues that a match between equivocality and message situation exists and the richness of the medium used can address it

### **Summary**

Several factors derived from faculty perceptions about technology in the classroom represent barriers to the adoption of blended learning as a pedagogical alternative in higher education. Faculty apprehension and perceptions of incompatibility with traditional pedagogical methods is one barrier to the full integration of blended learning in higher education (Bacow et al., 2012). As with the adoption of technology in other fields, the fear of technology replacing the

worker exists amongst some faculty members. Blended learning challenges the traditional belief that podium lectures represent the most effective means of engaging students in critical thinking and learning (Garrison & Vaughan, 2008).

Curriculum development represents another barrier to the adoption of blended learning at the higher education level. This barrier is concerned with the disenfranchising effect technology could have on faculty autonomy in the classroom. Curriculum development for a blended learning course requires more than simply moving traditional instruction methods into the online environment. Because blended learning is a student-centered approach, time must be spent bringing together the different elements of time, space, fidelity and humanness to meet the needs of the student (Bonk & Graham, 2006).

Another barrier to the adoption of blended learning is perception by faculty members that the online environment provides less discourse than in face-to-face environments. Significant coverage and comparative studies concerning face-to-face versus computer-mediated instruction exists in the literature. For example, Foote and Mixson-Brookshire (2014) conducted a study of the perceived impact of blended and online learning tools on learning and engagement with first year university students. They concluded that instructors play an important role in blended learning courses through content development, discussion facilitation, and creation of a safe learning environment. Bacow et al. (2012) proposed that the use of online tools in instruction is foreign to many faculty members. Social media and other interactive online learning technologies are widely used by students entering universities today. Understanding their use of these tools in a blended academic environment can make significant strides in eliminating adoption barriers and increase student retention in these courses. The value of a higher education

is being questioned and it is important to remove barriers and provide opportunities for exploration of new and emerging pedagogical methods of instruction.

Questioning the value of higher education by the public is occurring far more frequently today than in past generations. For example, PayPal founder Peter Thiel, directly challenges the premise that a college education is a necessity for success at all. Through the Thiel Foundation, Thiel Fellows receive \$100,000 and mentorship to pursue their research or business ideas outside of the college classroom (Thiel fellowship, 2014). The foundation estimates that Thiel Fellows have produced over \$100 million in economic growth through investments, grants, and revenue since inception of the program. While members have not been complete successes, others have forgone college to start businesses that employ over 200 people. Understanding how blended learning fosters creativity and collaboration in a student-centered learning environment starts with examining perceptions of usage by students and faculty. Careful assessment and comparison of student and faculty perceptions of blended learning can assist in identifying implementation best practices. These best practices can support faculty and increase student retention at institutions presently struggling to maintain satisfactory levels of student retention.

The emphasis on student retention and institutional resources includes the need to manage technology resources more effectively. As government support declines and student retention levels fluctuate, maintaining high levels of educational satisfaction with the learning experience constitutes the new competitive benchmark for many universities today (Kilburn, Kilburn, & Cates, 2014). In a recent documentary looking at the challenges many universities are facing, Rossi (2014) discloses how colleges have become more like businesses in the way they seek to attract new students to their universities with lavish amenities unrelated to promotion of academic growth. As with other brick and mortar organizations, academic institutions are also

frequently competing for new students with online universities such as the University of Phoenix. Access, flexibility, cost effectiveness, and a student-centered pedagogy are important considerations for higher education institutions hoping to capture the 21<sup>st</sup> Century student.

Universities are implementing alternative course delivery methods that can incorporate blended learning. In a report by the Babson Survey Research Group and the College Board, (2012), 62% of higher education institutions are providing some form of online experience for their student population. Results of the survey found that 7.1 million higher education students enrolled in at least one online or blended course in the United States in 2012. Unfortunately, many institutions providing these services still have yet to find ways of reducing the cost to the student. National Center for Education Statistics (2013) projects the cost for higher education at all public, private and non-profit institutions will rise significantly. The cost of undergraduate tuition including room and board at a public university during the 2011–2012 academic years was between \$14,300 and \$23,300. The cost at a private university was \$37,800. Understanding how students and faculty perceive the blended learning experience and their preparedness to utilize this forum are essential factors in creating a brighter academic experience for the diverse group of learners entering higher education institutions today.

## Chapter 2: Literature Review

### Introduction

Traditional classroom instruction is expensive and offers little flexibility for the student or faculty member. Scheduling and classroom availability often determine presentation time and method of the conventional course of instruction (Hofmann, 2006). Current methods of instruction take advantage of emerging technology and network communication methods. These advancements have culminated in new pedagogical methods that incorporate different modalities. E-learning, online learning, hybrid and blended learning are instructional methods that incorporate both synchronous and asynchronous computer-mediated communication methods. The use of technology in the classroom has advanced so rapidly that Masie (2006) posits that all instructional methods of e-learning that use a form of computer-mediated communication should eliminate the letter e as a prefix. Blended learning is an outgrowth of many of the technical advancements over the past two decades.

Guided by these perspectives, the literature was reviewed to identify a framework that could support such a fluent and rapidly changing instruction method. It was also necessary for the framework to be sufficiently scoped to include the perceptions of both student and faculty in terms of the use, preparedness, and satisfaction. Several sources were used to obtain information included in this research. Peer reviewed articles in several academic databases and books authored by subject matter experts were used as information resources. Educational databases, such as Education Full-text, ERIC, and ProQuest provided a wide range of journal articles and other academically published works on blended learning, computer-mediated communication, web-based technologies, and Community of Inquiry theory.

## **Hybrid or Blended Learning**

Mitchell and Honore (2007) define hybrid learning as a combination of face-to-face and online learning that takes advantages of traditional and online instruction methods. Hybrid courses contain varying amounts of e-learning activities such as online quizzes and discussions mixed with face-to-face class instruction. What differentiates hybrid courses from other forms of online learning is that it prescribes a 25% to 50% division between face-to-face and self-directed out of class work. Allen and Seaman (2007) advocate that web-facilitated courses have over 29% of the instruction occurring online. In blended or hybrid courses, 30% to 79% of the instruction can occur online. Any online instruction that goes beyond this amount of time represents participation in an online course by this definition.

Alternatively, blended learning as defined by Graham (2006) is a system that combines face-to-face and computer-mediated instruction. By this definition, blended learning consists of learning delivery by different modalities in conjunction with face-to-face instruction, independent of time restrictions. An example of the distinction between blended and hybrid learning is that a hybrid course has students in face-to-face meetings with instructors a percentage of the time. Other times they work independently online. In this example, online learning may only consist of a slide presentation reviewed online by the student.

Blended learning represents the delivery of instruction using multiple synchronous or asynchronous methods of computer-mediated delivery. This refines and narrows the focus of technology's role in the delivery process of blended learning. Computer-mediated delivery methods occur in conjunction with face-to-face instruction unrestricted by percentage of time spent or modality used. In this manner, unlike hybrid learning, blended learning represents a refined method of instruction delivery.

## **Blended Learning Historically**

Reviewing the evolution of blended learning helps our understanding of the lack of consensus defining the practice. At the K-12 school level, blended learning continues to undergo transformation as it gains greater acceptance at the higher education level (Wang, 2010). This change is helping to form the basis for a workable definition at the higher education level. Early origins of blended learning go back as far as thirty years ago. When instructors interact with students using familiar technologies such as Blackboard, Google+, or online chats, greater opportunities for engagement can develop. In comparison to present forms of instructional delivery, instructor lead learning lacks scale, ease of deployment and limitations on space and time, all central to blended learning (Young, 2002). One can contrast this form of instruction with training provided through mainframe systems or mainframe-based training.

Through the 1960s and 1970s, mainframe computers extended the reach of instructors but limited interaction between student and instructor by using character-based monochrome terminals for instruction. Mainframe-based training platforms were introduced in 1963 by Control Data and the University of Illinois (Bersin, 2004). A catalyst for funding this form of systems training has origins in America's space race with the Soviet Union. President Eisenhower, during his administration, assigned funds to the National Science Foundation to further computer-based training (Bersin, 2004). Mainframe-based training provided a clear foundational perspective on what became a blend of instructor-led training and technology. As technological advances occurred throughout the 1970s, issues with scale and distribution of training led to the use of satellite-based Computer-mediated instruction.

Satellite-based training became widely used by large organizations for training employees scattered geographically throughout an organization using multiple delivery methods.

This furthered the idea of blended learning by using multiple means of providing instruction but increased the expense of course delivery. For each area where instruction occurred, televisions and broadcast systems were required. The expense of setting up video systems in multiple locations increased infrastructure cost for the organization.

Fidelity in blended learning relates to the ability of instruction to reach all senses when providing instruction (Graham, 2006). Many web-based learning technologies used in instruction today provide a fidelity not widely available until the 1980s. The 1980s brought in distributed systems, PCs, multimedia, CD-ROMs, and advanced networking capabilities. In the 1980s, distributed training centered on the technology and supporting infrastructure. Mass storage using CD-ROM technology allowed training to be video recorded and mass distributed.

High quality audio and video training on CD-ROMs distributed to trainees began the period of Computer Based Training (CBT) instruction. For example, in the early 1990s the United States Air Force began providing computer training to Information Managers using CBT instruction recorded on CD-ROM. Prior to network and infrastructure advancements, training remained in a mostly asynchronous mode unless presented face-to-face.

### **Computer-mediated Communication**

Computer-mediated communication (CMC) is defined as the communication made possible between two or more individuals utilizing two or more electronic devices (McQuail, 2005). CMC theories often lack longevity in the literature because the utility of each new theory is short lived due to technological advancements in communication (Walther, 2011). CMC does however provide a framework for reviewing communication modalities occurring in an online or blended learning environment.



Technology as a medium in our communication with others is subtly shaping the way we communicate in almost every relational context (Walther, 1996). Computer-mediated communication advancements have pushed the bounds of reality through social networks and virtual worlds that allow individuals to create new images of themselves. Through these networks, individuals form a sense of connectedness within their group memberships (Turkle, 2011). This sense of connectedness and humanness are important aspects of communication within a computer-mediated environment.

For all communication done through computer-mediated methods today, we know little about how it changes the dynamics of our relationships. Computer-mediated communication allows individuals to be a member of a network yet also allows them to hide from others within that very group (Turkle, 2011). Delivery of information through computer-mediated methods occurs in blended learning environments using several technologies. The diversity of web-based technologies used in the course of instruction can include but are not limited to Facebook, Google hangouts, Blackboard, or web-based quizzes taken online. Each of these communication methods have a positive or negative impact on peer-to-peer or faculty to student communication.

**Cues-filtered-out theory.** In order to recognize the evolving role of CMC methods in communicating change, an assessment of early forms of communicating organizational change through Cues-filtered-out methods of CMC is necessary. Theories associated with Computer-mediated communication methods continue to evolve. An effort to address questions related to how CMC methods are changing the way we communicate, with who we communicate, and how we exploit this technology to communicate abound (Walther, Van Der Heide, Ramirez, Burgoon, & Pena, 2015). Unfortunately, the constantly changing communication landscape, formed by

rapid changes in technology, limits any study of interpersonal communication and quickly relegates each new theory to the sidelines (Walther, 2011).

Culnan and Markus (1987) first used the phrase Computer-mediated communication to describe a group of theories that shared the same premise about digital communications. The premise is that communication that lacks the ability to express nonverbal cues such as body language, voice inflection, and eye movement, obstructs the social function of communication. In blended learning, the ability to communicate effectively in an asynchronous environment such as Blackboard discussion groups or a synchronous environment like Blackboard collaborative is as important as in face-to-face instruction.

Yamagata-Lynch (2014) conducted a study of graduate level student participation in an online course facilitated by Blackboard collaborative (synchronous) and Blackboard discussion groups (asynchronous) methods. Student reflections collected throughout the course provided data to determine student reliability on the synchronous or asynchronous tools in their learning. Results of the study suggest that synchronous learning can actually complement asynchronous learning.

Within the literature related to cues-filtered-out theory, an asynchronous only communication method degrades social cues normally associated with face-to-face encounters. That does not relegate cues-filtered theory to the sidelines when it comes to understanding communication within a blended learning context. For example, some forms of communication require a level of confidentiality to ensure the privacy of the communication. Providing student grades or assignments through asynchronous means to ensure student privacy or efficiency is preferable to open discussion through synchronous methods found in many web-based learning tools. Alternatively, when the need to engage collaboratively or to provide instruction to a wide

and dispersed audience is necessary, the use of more media-rich, synchronous methods of communication may be preferable.

**Media richness theories.** Daft & Lengel (1986) first proposed media-richness theory as a decision-making measurement model to assess the relative efficiency of different forms of media to reduce ambiguity in organizational decision-making. The theory has application as a model for studying formal and informal interpersonal communication as well. Media-richness theories define communication on a linear scale of media subdivisions that support the communication. This is comparable to Graham's (2006) view of humanness levels in blended learning where the level of computer-mediated interaction or media-richness in the communication dictates the levels of humanness. Communication cue subdivisions in media-richness theory are defined by the medium, immediacy of feedback, either synchronous or asynchronously, potential for natural language, and the ability for message personalization make up.

Face-to-face communication is believed to be the richest form of communication because it supports each of these subdivisions at the highest level with the most cues and immediacy of feedback possible (Walther, 2011). Yet face-to-face communication, when used inappropriately, can have worse consequences than those cues-filtered-out theories mentioned early. Challenges to the premise of media-richness theory occur several times throughout the literature (Dennis & Kinney, 1998; Markus, 1994; Walther & Parks, 2002). Criticism of its ability to predict outcomes related to interpersonal perceptions of communication, media awareness, and cultural context of communication continues. Media-richness theory offers a framework for discovery of student and faculty perceptions of blended learning by viewing the tools, modalities, and communication conducted in this environment.

## **Computer-mediated Communication as a Change Agent**

The imperative of technology states that competitors that to ignore the innovative technology put in place by their competition do so at their own peril (Betz, 2011). It is unexpected that any organization, academic or business, today can expect to thrive or survive within the global market economy by avoiding change or technology. Business and academic institutions exist in a volatile and constantly changing environment of consumers and Internet startups marketing and selling across an expanding matrix of communication networks. A common mantra for many organizations today is change or die (Robbins & Judge, 2013), yet many institutions have been slow to adopt the rapidly changing technology around them.

Authors Friedman and Mandelbaum (2011) cite adapting to globalization, adjusting to the Information Technology revolution, soaring budget deficits, and rising energy consumption around the world as the four major challenges organizations face today in global markets. The likely instigator of rapid change is advancements in Computer-mediated communication methods that affect the method and context in which we communicate with each other. In an organizational change, related study of 43 organizations Larry Semeltzer (1991) identified an inability of leadership to communicate change effectively as the leading cause of failed change implementation. Little about effectively communicating change has occurred since this observation, yet the convergence of computer-mediated communication devices and organizational change theories and models have drastically altered the speed, dissemination, and retention of information communicated during periods of change.

Addressing the convergence of organizational change and computer-mediated communication methods requires an understanding of the relationship between communicating organizational change and the theories behind the medium used. Computer-mediated

communication (CMC) theories attempt to establish a framework for understanding the social, cultural, and gender related aspects of communicating in a cues-filtered-out asynchronous environment or in the synchronous media rich environment.

By definition, effective blended learning depends on computer-mediated communication, synchronously or asynchronously, to affect the time, space, fidelity, and humanness of instruction (Bonk & Graham, 2006). Because of computer-mediated communication's significance in the blended experience, its affect can be seen in the faculty and student issues that persist in this environment.

### **Educator Development**

Owens (2012) conducted a mixed-methods study to analyze input from 529 educators on their pedagogical view of blended learning. The purpose of the study was to identify a gap between educator beliefs about blended learning and their practice of it in the classroom. The key finding in the study revealed the need for more resources and educator instruction. The study was limited in size yet the conclusive results show a need for further research in the area of educator perceptions, satisfaction, and practice of their pedagogical styles to the blended learning environment.

Throughout the literature, educator beliefs about blended learning are found to be a great influence on the blended classroom experience for students (Becker, 2000; Cuban, Kirkpatrick, and Peck, 2001). Therefore, pedagogical beliefs must coincide with practice in order for those educators with traditional pedagogical beliefs to incorporate technology into the learning rather than simply using technology as a medium to share information.

Conole and Fill (2005) suggest that the introduction of new technology can often place the focus on the technology rather than educator development. Focusing the technology that

educators use to conduct blended courses is not effective means of supporting student learning (Wang, Liu, Chou, Liang, Chan, & Yang, 2004). A holistic view inclusive of the space, time, fidelity, and humanness factors when considering blended learning programs is required as the most effective means of promoting effective practices in this environment (Graham, 2006).

The importance of addressing the resource issue in blended learning by providing instruction to educators that incorporates their pedagogical beliefs with blended learning strategies cannot be understated. Simply providing technical training without consideration of the educator's pedagogical style relegates the technology to an information-sharing source rather than an integral tool in enhancing learning. Closing the gap between educator perceptions and practices in the classroom requires further study. Student satisfaction and motivation can flourish in blended environments as long as pedagogical beliefs and practices coincide. Teachers' beliefs are paramount in influencing educational outcomes through educator practices (Cuban et al., 2001)

What educators espouse to often does not result in classroom practice and suggests that holding a learning belief alone is not sufficient in facilitating a student-centered approach in blended learning environments. Gitterman and Germain (2008) posit that many educators have the misconception that subject matter expertise alone provides the ability to teach. A strong determinate of an effective blended learning environment is revealed to be targeted and specific training development within the blended learning environments themselves. There are however, some challenges faced in both conventional and blended forms of instruction.

### **Ethical Dilemmas Associated with Blended Learning**

Weston (2008) defines ethics as a concern with the basic needs and legitimate expectations of others as well as our own. "Ethics asks us to look at the ripple effects of who we

are and what we do, to see ourselves as one among others” (p. 5). Merriam-Webster (2014) defines social networking as the creation and maintenance of personal and business relationships, especially online. Ethical practices in any relationship are necessary to maintain trust and openness amongst those who participate in the relationship.

Academic relationships formed in blended learning through computer-mediated means can create uniquely different ethical dilemmas than in the face-to-face environment of conventional instruction. Early research into the phenomenon of online ethics has been unable to propose a suitable framework for online ethics. No standard has been developed that would allow institutions to realistically thrive and ethically identify with geographically, economically, and socially diverse online users effectively (Whelan, Moon, & Grant, 2013).

**Prevalence of cheating online.** Academic dishonesty, cheating on exams, and plagiarism, are rapidly becoming a concern for faculty and administrators at all levels of higher education (Grijalva, Nowell, & Kerkvliet, 2006). In recent years, several examples reveal a systemic issue at institutions in higher education. John Etchemendy, Stanford University Provost, stated in a Bloomberg report that the university was receiving an unusually high number of reports of student dishonesty. A cheating scandal involving more than 20 students suggest that wide spread use of technology apparently made cheating easier (Staiti, 2015).

The Air Force Academy represents another example of the prevalence of academic cheating. Lt Gen. Michelle Johnson, in an investigation of more than 42 freshmen cadets found 10 guilty of cheating on a Chemistry 100 lab. Cadets copied the work of cadets from an earlier course and presented it as their own work. Once discovered the students faced the academic review board. Nine of the cadets received expulsion from the academy and one other resigned.

The prevalence of cheating is evident at all levels but does occur for different reasons and academic institutions appear to play a role.

Grijalva et al. (2006) in their study of online cheating suggest student cheating occurs for two distinct reasons. Planned cheating by students is thought out with the consequences weighed. This form of cheating involves the making of crib sheets for tests, copying homework or plagiarizing a paper. Students that plan their cheating do so in full knowledge that the practice is considered wrong. Mobile technology and the prevalence of information on the Internet make obtaining this information very easy for students. Panic cheating is the other form of cheating done by students.

This form of cheating occurs when students feel a sense of social pressure and react inappropriately when faced with an inability to respond to tests questions. Often this will occur when a student is under or unprepared for an examination and decides to look on another student's paper or copy answers from an answer sheet. While cheating is obviously an issue for institutions and students, Grijalva et al. (2006) found that only 3% of online course attendees actually cheated. This suggests that cheating is no more prevalent in courses conducted using technology than in face-to-face instruction. Cheating represents an unwelcomed philosophical shift in the importance of morale and ethical responsibility of students at the higher education level.

**Philosophical approach to ethical dilemmas.** Completion of an academic degree should stand for truth, knowledge, academic integrity and respect for is produced by others (Aaron & Roche, 2013). This implies a sense of moral and ethical practice in a framework that produces specific outcomes. Myers and Miller (1996) posit that an Aristotelian approach to moral and ethical dilemmas associated with the use of information systems offer a practical approach when



dealing with these issues. The authors argue that fundamental ethical issues associated with privacy, information accuracy, accesses to information, and intellectual property rights are inherent where technology is the protagonist.

Balancing the rights of others with the benefits of information technology requires an ethical framework to guide educators and administrators seeking to implement blended learning at their institutions. By contrasting Aristotle's ethics with utilitarian and Kantian theories they suggest Aristotelian ethics can provide the greatest framework from which to draw out fundamental dilemmas derived from the use of information technology. Aristotelian views that suggest the greatest good should always be followed can be the basis from which the conversation about ethical practices in blended learning should proceed.

A dilemma of ownership exists between the institution that maintains the systems where information resides and the individuals that produce the information. As pointed out by Terblanche (2011), most users are more interested in content versus quality therefore something stated in error or on purpose can create an ethical dilemma. In blended learning students are often required to seek out information online in the absence of regular face-to-face meetings with instructors. Proper instruction on how to scrutinize the vast amount of information online is necessary when attending or instructing a blended course in order to avoid any ethical issues. Access to information presents another ethical dilemma. In this case, the good of the institution may be in conflict with that of its users.

Consideration of intellectual ownership questions whether an individual has a right to access any information generated and stored in a database containing information on them at any time. Blended courses are often conducted using web-based learning systems that retain student information for an undefined period of time. In the Blackboard system, students can access

course information indefinitely. When other open-source systems such as Google+ are used, student access can be restricted based on administrators of the content area. Once students produce information who has ownership and the responsibility of ensuring the accuracy of that information. Myers and Miller (1996) suggest for access and intellectual property rights legal policies be adopted by institutions for the protection of this information. More work is required to determine the impact and prevalence of academic cheating. There is however work being done in this area.

**Addressing ethical dilemmas in blended learning.** Faculty and students agree that cheating in college is an issue and that requires the attention of faculty and administrators (Aaron & Roche, 2013). In a comparative longitudinal study of academic cheating Brown, Weible, and Olmosk (2010) found a two-fold increase in academic dishonesty for the past century. They compared previous studies related to academic cheating and found between 1988 and 2008, academic dishonesty increased from 49% to 100%. Business schools at higher education institutions with cheating problems in the past have attempted to address cheating through several means.

Academic student honor codes have been put in place and provide some sense of accountability for students and institutions. Academic institutions report a 25% reduction in cheating instances where student directed honor codes were in place (Nilson, 2010). Most honor programs require students to sign a pledge of honesty on the exams they take. This acts as a reminder to students to their commitment to the honor pledge. Students are also in control of administering disciplinary actions. Student boards' make decisions related to the severity of punishment and agree upon levels of severity. Some private universities have institutional codes of honor where students agree prior to entering into the institution to the ethical practices of the

institution. The culture at the institution however, tends to be the greatest predictor of academic honesty on campuses.

Academic dishonesty is not something that developed at institutions of higher education and unfortunately when practiced regularly becomes common practice throughout an individual's work life (Aaron & Roche, 2013). To develop a culture of honesty in the information age students must be presented with instruction that highlights ethical practice in all areas of life. A degree received under questionable circumstance undervalues the degree and rewarding institution. Wueste (2008) suggests providing students information on ethical practices early and often throughout their academic career can establish a lasting culture of academic honesty even in an age where information saturates all area of their life.

### **Summary**

In the early 1960s, mainframe systems were used in course delivery. In the late 1990s computer based training (CBTs) were used to compensate for geographic separation of student and instructor. Blended learning, as defined by Graham (2006), is a system that combines face-to-face and computer-mediated instruction has evolved to take advantage of advanced technology and networks to create a learning environment supportive of both traditional and emerging instructional methods.

Clark (2003) proposed blended learning be defined as two or more methods of training that combines classroom and online instruction through synchronous or asynchronous means. The combination of online and face-to-face learning implies the use of different computer-mediated modalities be used in the course of blended instruction. Synchronous media-rich or asynchronous, cues-filtered, broaden the scope of possibilities in the blended learning environment. Blackboard collaborative, Google+, Discussion boards, and other web-based

learning tools provide opportunity to stretch the classroom boundaries to include all learner types. Some barriers to the adoption of blended environments in higher education persist.

Traditional classroom instruction provides little flexibility for the student or faculty member. Scheduling and classroom availability often determine presentation time and method in the conventional course (Hofmann, 2006). Each aspect of the learning experience has some influence over how students learn and instructors teach. How teachers and students perceive learning is paramount to their acceptance and satisfaction with their learning outcomes (Cuban et al., 2001). The technology used in the course of instruction also plays a role in student and faculty perceptions of the learning environment.

Technology has created more avenues of communication and with it greater levels of anonymity (Turkle, 2011). To understand academic discourse between student and faculty within a blended learning environment a framework that incorporates the social, cognitive, and facilitation of faculty in the learning is required. Garrison, Anderson and Archer (2010) build upon Dewey's (1938) theory of inquiry and adapt it to the educational experience through social presence, Cognitive presence, and teaching presence. When blended learning is considered within a framework that considers these important aspects of instruction, student and faculty perceptions of the experience and the web-based technology used in it can be understood and brought together to create a more equitable student focused learning environment.

As blended learning is more widely adopted as an alternative form of instruction many of the challenges found in face-to-face instruction need to be addressed. Chief among those challenges is the issue of academic honesty online. Academic dishonesty remains a serious issue in higher education and yet many faculty and administrators have little knowledge of how to detect and deal with the issue (Whitley & Keith-Spiegel, 2002). To address this and other issues

a philosophical approach of student engagement, that recognizes the pervasive nature of technology and information in society today, is required.

Aaron and Roche (2013) found that academic honor codes, when established jointly by those members of the community of inquiry and their faculty could be beneficial. By requiring student accountability to each other, Nilson (2010) found that a reduction of 25% in cheating incidents could be achieved. Alternatively, Grijalva et al. (2006) found in a study of college students at a large public institution, that cheating was no more prevalent online than in courses held face-to-face. In either case, cheating in online or face-to-face courses represents a challenge in higher education.

### **Chapter 3: Research Methodology**

This chapter outlines the process for, research method, data collection, and instrument development used in the study to determine if a significant difference between faculty and student perceptions of blended learning exists at a private liberal arts institution in South Texas. Survey research is a quantitative method of obtaining numeric data about the trends, opinions and attitudes of a population (Creswell, 2014). Data collected from students and faculty was done through identical cross-sectional online questionnaires utilizing convenience sampling.

Convenience sampling is the non-probability selection of statistical data of a population. Researchers often use convenience sampling to identify trends and when time and finances do not permit the randomized sampling of a population (Creswell, 2014). Cross-sectional data collection was used in this study to collect data at a single point in time from a representative sample of the overall population of student and faculty members at the research location. This method of data collection, through an online medium, allows for an easy, economical, and expedient method of obtaining data for tabulated and descriptive data analysis. Additionally, the versatility, efficiency, and generalizability of survey-designed research has led to its popularity and use through the business and academic worlds (Patten, 2011).

#### **Research Design**

The appropriate research design allows the researcher to define the type study, propose research questions to answer, and describe methods for data collection and reporting that provide a framework that answers research questions (Creswell, 2014). This descriptive survey research study sought to answer the following research questions through the collection of convenience sampling of the student and faculty population of a South Texas liberal arts institution.

Research question 1: Is there a statistically significant difference in student and faculty perceptions with the use of web-based technologies in course instruction?

Research question 2: Is there a statistically significant difference in student and faculty perceptions with the frequency web-based technologies are used in course instruction?

Research question 3: Is there a statistically significant difference in student and faculty perceptions of readiness to use web-based technologies in courses?

Research question 4: Is there a statically significant difference in student and faculty overall satisfaction with web-based technology and course instruction?

To expound upon the tabulated quantitative data collected, three qualitative questions were included in the survey of the population. Qualitative research is used to explore the underlying reasons, opinions, and motivations of a population and is often used to develop ideas and hypotheses that can lead potential quantitative research (Creswell, 2014).

Four quantitative questions were used to obtain numeric data for analysis. The first question relates to how the student or faculty member perceives the web-based technology being used in the classroom to engage students. Faculty and students were asked to rate their opinions on technology use then elaborate further on how it is being used to enhance engagement in the classroom. The next question asked about the frequency web-based tools are used in the course of instruction. A Likert scale with five categories (extremely satisfied, somewhat satisfied, satisfied, somewhat dissatisfied, and extremely dissatisfied) were used as measures. The third question explored student and faculty perceptions of proficiency with the web-based learning technology used to include the support provided. The final question asked whether student and faculty were satisfied with the web-based learning technologies used in the course of instruction.

## **Population**

The population studied in this research consisted of all main campus faculty and student body members at the undergraduate, graduate, and doctoral levels at a private, liberal arts university in South Texas. Participants in the study were full and part-time students identified by the office of Institutional Research with an active university email account. The total student population at the university is approximately 5,869 students. The student body consisted of 62% female and 38% male students. Students were registered in one of four professional schools or nine other departments within the university. The student full time retention rate during the 2013 – 2014 academic school year was 73.9%.

The faculty population at the university consisted of 277 full-time undergraduate and 254 part-time instructors. Full-time faculty members with a Ph.D. or terminal degree was 61%. The average class size taught by full-time and part-time faculty members averages 25 students per class. Faculty participants are those individuals who have taught at least one blended learning course based on the given definition of blended learning provided in the participant survey.

No incentive, monetary or otherwise, is given to those individuals who participated in the study. Compliance with Institutional Review Board (IRB) requirements for confidentiality and privacy are made in a statement at the beginning of the survey. Individuals were prompted to acknowledge a consent statement before moving on to complete the questionnaire.

## **Sample**

Convenience sampling was used to solicit participants through an online survey tool sent through email by the Institutional Research department. The assistance of the Institutional Research department was critical to the timing of the survey to limit conflict with other institutional surveys being sent to students and faculty during the spring semester. Participants



who received the survey via email were taken to the online survey site and are greeted with an approved consent form. Participants were provided information on their rights and protection of their privacy as well as their right to end the survey at any point.

No regard to gender or age, educational department, or preference of technology used was considered in selection of participants. The Institutional Research Department provided a list of all faculty members who have taught or were teaching blended courses at the university between 2012 and 2016. All were sent a link to the questionnaire by the Institutional Review department requesting their participation. This was a very important part of ensuring the appropriate population of faculty was identified.

### **Data Collection**

Data collection for this research was done using an online survey tool sent to participants via email with a link to the survey from the Institutional Research Department on behalf of the researcher. The use of an online survey had several advantages. Online surveys obtain immediate response making them a faster means of obtaining data. They are cheaper to administer and allow for quick analysis of the quantitative and qualitative data collected (Pallant, 2013). An email with information about the study and researcher was sent by the Institutional Research Department on behalf of the researcher to validate the legitimacy of the research. All main campus students and faculty members attending or teaching undergraduate through graduate courses in one of the 14 academic departments at the university were sent the email. The request provided a link to the online survey tool SurveyMonkey that was used to collect the data.

SurveyMonkey was selected to create the questionnaire because it provided the researcher the ability to widely distribute the questionnaire through email. It also provided several reporting tools that could be used to for descriptive data analysis. The online survey

site provides real-time survey data collection and monitoring of participant activity so the researcher could monitor throughout response rates throughout the time the survey remained open. The survey remained open to both faculty and students for a period of 30 days. This time was selected based on the number of institutional surveys being distributed during the spring semester. The researcher also sought to obtain the greatest response rate possible by distributing the survey during the beginning of a school year.

### **Research Instrument**

The survey instrument was constructed and made available using the online survey tool Survey Monkey. The tool provided several data collection advantages. First, it provides customizable templates developed by professional survey designers to be used by researchers. The ease and limited cost of distribution makes providing the survey the most economical, efficient and versatile means of collecting the data (Creswell, 2014). No widely accepted survey instrument for gathering data for this study was obtained therefore the survey instrument was constructed specifically for this study to measure and compare perceptions of student and faculty concerning blended learning and the web-based technology used.

The questionnaire used in this research included four demographic questions, three open-ended questions and six quantitative questions through the online survey tool. Data collected was then scrubbed using Microsoft Excel to eliminate unneeded data, such as IP addresses, start times, and participant numeric listing. This prepared the data for analysis in IBM's Statistical Package for Social Sciences (SPSS) version 21. Student and faculty qualitative responses that expanded upon quantitative input were analyzed and coded to uncover common themes. The narrative data was extracted from the online survey tool and placed into a spreadsheet to analyze brief statements provided by respondents. Key words within the text were identified in each

response and categories developed across all inputs. Once these categories are identified the researcher consolidated like categories and developed over all themes that materialized from the text provided

### **Protection of Human Subjects and Ethical Considerations**

To ensure the ethical treatment and confidentiality of survey participants a confidentiality statement outlining participant rights was included in the request for participation email. When participants accessed the online survey site, request for completion of a consent form is presented before entering the survey. Prior to conducting this research approval for exempt status for the protection of human subjects was obtained from university's Institutional Review Board (IRB). Obtaining this approval indicates that all Collaborative Institutional Training Initiative (CITI) testing was completed and to ensure no protected populations were not being surveyed. All efforts were made to ensure protection of participant information and ethical practices were adhered to when conducting this study.

### **Data Analysis**

Statistical analysis of data collected from survey results is performed with IBM's Statistical Package for the Social Sciences (SPSS 21.0) tool and Microsoft Excel 2013. Data retrieved from the online survey site were placed in a spreadsheet, all extraneous data removed, and variables to be used in statistical analysis identified. Data was then uploaded into SPSS for analysis. The tool is also used to perform Cronbach's Alpha testing and effect sizes reported. The comparison of student and faculty group means is performed using independent t-testing of the groups. Independent t-testing is a robust form of inferential statistics capable of handling any violation of normality of distributions (Cronk, 2012).

## Summary

This chapter identified how the researcher approached the research of student and faculty perceptions of blended learning. The identification of a research design that was appropriate for this form of research was described. Survey research design provided a means of collecting numeric data on descriptive trends, attitudes or opinions in order to generalize from a sample to a population being studied (Fowler, 2009). With the assistance of the university's Institutional Research Department, a survey questionnaire was developed and approved.

The target population for this study included all main campus students and faculty members who have instructed or attended at least one blended learning course at the four-year private liberal arts university where the study was conducted. The population studied consisted of all undergraduate and graduate students and faculty in 14 departments at the university. The Institutional Research Department assisted in identifying all faculty members who have taught a blended learning course in the previous four years for participation in this research. All participants were asked to provide both quantitative and qualitative responses to questions related to the use, readiness, and satisfaction with their blended learning experience on campus.

Quantitative and qualitative responses were analyzed with several tools. All statistical analysis was performed using version 21.0 of IBM's SPSS statistical tool. Narrative response coding was performed using Microsoft Excel to categorize inputs into themes that materialized through participant responses.

## Chapter 4: Results

The purpose of this quantitative, non-experimental survey research was to determine if a significant difference exists between student and faculty perceptions of blended learning. The researcher hypothesized that no difference existed in student and faculty perceptions of blended learning based on factors of use, readiness, satisfaction, and frequency web-based technology is used. Quantitative and qualitative methods are used to explore these factors as reported by students and faculty at a private liberal arts university in South Texas.

The study sought to quantify faculty and student perceptions of blended learning by measuring their perception of factors identified within the literature as components of a successful blended learning environment. Secondly, the study attempted to bring to the fore perceptual differences students and faculty may have with the instruments used in the blended environment. Finally, both quantitative and qualitative information was used to provide descriptive statistical analysis, supported by the results of coded qualitative responses, to report any differences in opinion of the blended experience in a predominantly Hispanic and female private institution.

Exploring perceptual differences between faculty and students required obtaining feedback from a large population of faculty and students in a limited amount of time in a cost effective manner. To obtain feedback a questionnaire was developed that included both quantitative and open-ended qualitative questions distributed through digital means. Working closely with the university's Institutional Research Department a population was identified and timing for the distribution of the questionnaire was determined. This ensured the population of students and faculty who had previously participated in a blended learning course were given the opportunity to participate in the survey.

In a study by Monroe and Adams (2012) to determine response rates of survey participants who received email or postal survey participation requests, no significant difference was found in response rates between the two methods. One significant difference however was revealed. Results of the study concluded that significant cost savings could be achieved if surveys were distributed via email. To ensure the most cost effective and timely distribution of the questionnaire used in this research an emails were sent to individuals with an institutional email account. The following questions were used in the research and were constructed based a review of literature on blended learning and the community of inquiry theoretical framework, which is used to guide the research:

Research question 1: Is there a statistically significant difference in student and faculty perceptions with the use of web-based technologies in course instruction?

Research question 2: Is there a statistically significant difference in student and faculty perceptions with the frequency web-based technologies are used in course instruction?

Research question 3: Is there a statistically significant difference in student and faculty perceptions of readiness to use web-based technologies in courses?

Research question 4: Is there a statically significant difference in student and faculty overall satisfaction with web-based technology and course instruction?

### **Data Cleaning**

A total of 86 online questionnaires were sent out to faculty members identified by the Institutional Research Department as having taught a blended learning course between 2012 and 2016. There were 86 faculty members contacted to complete the survey, of those 30 or 34% responded. Data retrieved from the online survey tool was initially downloaded and imported into Microsoft Excel. All extraneous data, such as IP address and dates were removed. Next, the

data was screened to determine where there were cases of missing or erroneous inputs. Finally, the data was uploaded in IBM's SPSS statistical tool for analysis.

In order to screen data for missing values frequency analysis was performed within IBM's SPSS statistical tool using Pairwise data screening for missing data. For all areas covered, the academic department category had the largest portion of missing data with seven responses missed. As indicated in Table 1, Case Processing Summary, 23% of the data for this category was missing. This however, is not an indicator of the level of skipped responses as much as it is an indicator of the large number of respondents from a certain department who completed the questionnaire. Selecting more than one academic department was not an option within this survey so not to distort the number of participants. Upon review of the data, it was determined that the respondents answered other questions throughout the survey therefore all responses were considered in the analysis.

With the assistance of the Institutional Research Department, student questionnaires were sent out via email to all main campus students at the beginning of the 2016 spring semester. The number of main campus students who potentially who potentially received the mail totals over 5,000 men, women, full, and part-time students. A total of 225 or 4% of the potential student body responded to the survey. Data retrieved from the online survey tool was imported into Microsoft Excel and all extraneous data, such as IP address and dates were removed. Data was then imported to IBM's SPSS tool and Pairwise analysis conducted to determine missing data. Results of the analysis revealed that 79% of all responses were valid as shown in Table 2, Student Pairwise summary.

Table 1

*Pairwise Case Processing Summary of Missing Faculty Data*

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Proficiency with web-based tools	30	100.0%	0	0.0%	30	100.0%
Proficiency of students with web-based tools	30	100.0%	0	0.0%	30	100.0%
Satisfaction with institution support for web-based learning	30	100.0%	0	0.0%	30	100.0%
Student satisfaction with web-based learning	29	96.7%	1	3.3%	30	100.0%
How useful is web-based tech in course instruction	30	100.0%	0	0.0%	30	100.0%
Age	29	96.7%	1	3.3%	30	100.0%
Academic Dept.	23	76.7%	7	23.3%	30	100.0%
Yrs. Instructing	30	100.0%	0	0.0%	30	100.0%
Presently providing Blended Learning instruction	30	100.0%	0	0.0%	30	100.0%

*Note.* All faculty cases of missing data.

Finally, data collected was uploaded into IBM's SPSS statistical tool for analysis. Upon review of the data it was determined that those areas where data was missing could be explained based on how participant's responded to the questions asked and were not cases of failure to respond to the question asked.



Table 2

*Student Case Processing Summary for Missing Data*

	Valid		Missing		Total
	N	Percent	N	Percent	N
Proficiency w/ web-based tech in courses	178	79.1%	47	20.9%	225
Faculty proficiency w/ web-based tools in courses	178	79.1%	47	20.9%	225
Satisfaction with technical support	178	79.1%	47	20.9%	225
Faculty satisfaction with technical support	178	79.1%	47	20.9%	225
Usefulness of web-based tech in courses	178	79.1%	47	20.9%	225
Age	178	79.1%	47	20.9%	225
Academic level	178	79.1%	47	20.9%	225
Academic department	178	79.1%	47	20.9%	225
Years in college	178	79.1%	47	20.9%	225
Presently attending blended course	178	79.1%	47	20.9%	225

Note.  $N = 179$ .

**Results Analysis**

Organization of this section is based on data obtained through both quantitative and qualitative responses provided in the online questionnaire. The section is prepared in four sections. The first section provides demographic data on student and faculty who participated in the online questionnaire. The second section provides descriptive statistically analysis of the data obtained from student and faculty as it relates to their perceptions of the blended learning environment and use of the web-based tools. The next section provides inferential statistical data that compares student to faculty perceptions of five categories of the blended learning experience using means testing of the two groups. The final section provides analysis of the qualitative data obtained from participants. Participants in the survey were asked to elaborate on three quantitative questions related to their use and satisfaction within the blended learning environment and the technical support received.

**Demographic Data Analysis.** For all students participating in the survey  $N = 225$ , the largest majority 45.7%, were in the 23 years of age or less category. The greatest number of years attended for all student participants was 3-5 years or 52.9%. Additionally, for those students actively attending courses during the survey, 78.3% identified as an undergraduate. The majority of students participating in the survey, 66.5%, were registered in the school of business.

Table 3

*Demographic Characteristics of Student Participants (N = 225)*

Characteristic	n	%
<b>Age</b>		
23 or less	102	45.7
24 - 29	33	14.8
30 - 35	22	9.9
36 - 41	25	11.2
42 - 47	15	6.7
48 or older	26	11.7
<b>Years College</b>		
1 - 2 years	56	25.1
3 - 5 years	118	52.9
6 - 8 years	23	10.3
9 years or more	26	11.7
<b>Academic Level</b>		
Undergraduate	173	78.3
Graduate	24	10.9
Doctorate	24	10.9
<b>Department</b>		
CHASS	23	12.2
SMSE	11	5.9
SBA	125	66.5
DSE	17	9.0
SMD	3	1.6
SPT	1	0.5
FSNH	8	4.3

*Note.* Percentages are based on valid percentages reported

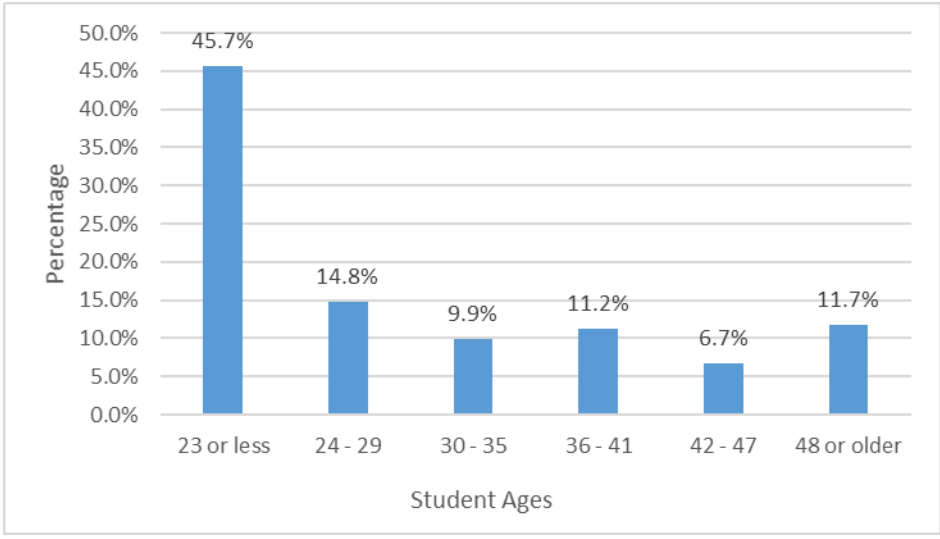


Figure 1. Student frequency distribution by age. Graphic shows that the majority of students 45% are 23 years of age or less. Students 24 – 29, 14.8%, follow them in years of age.

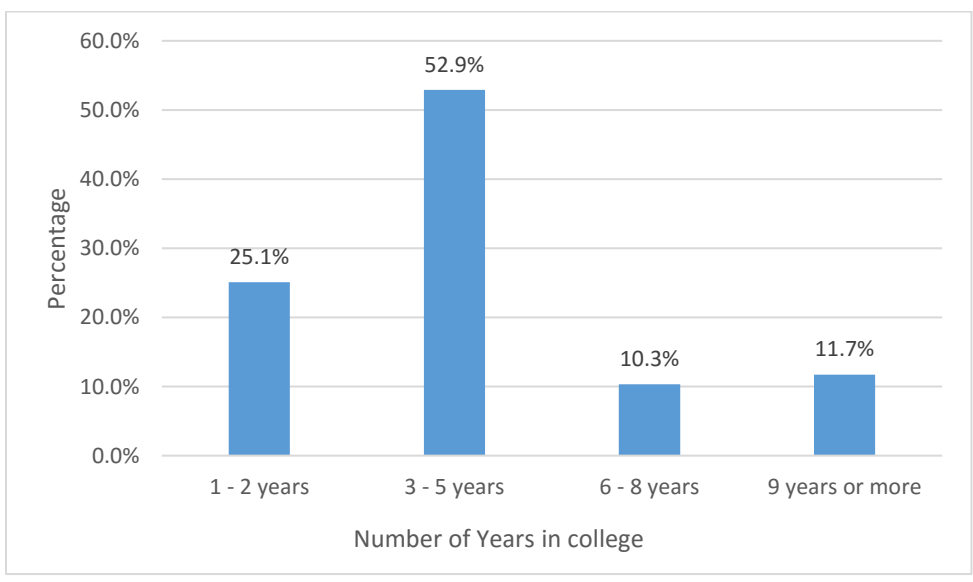
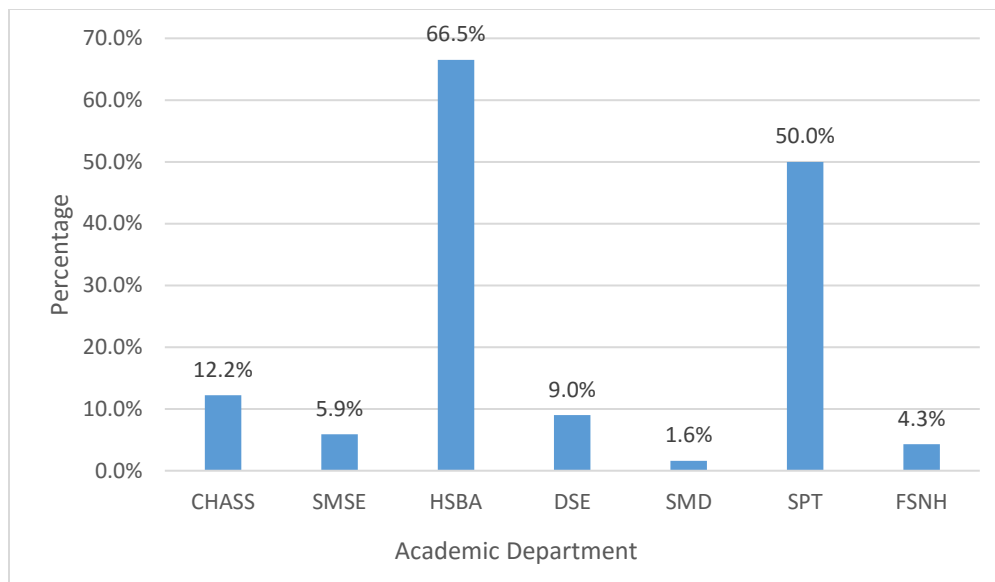
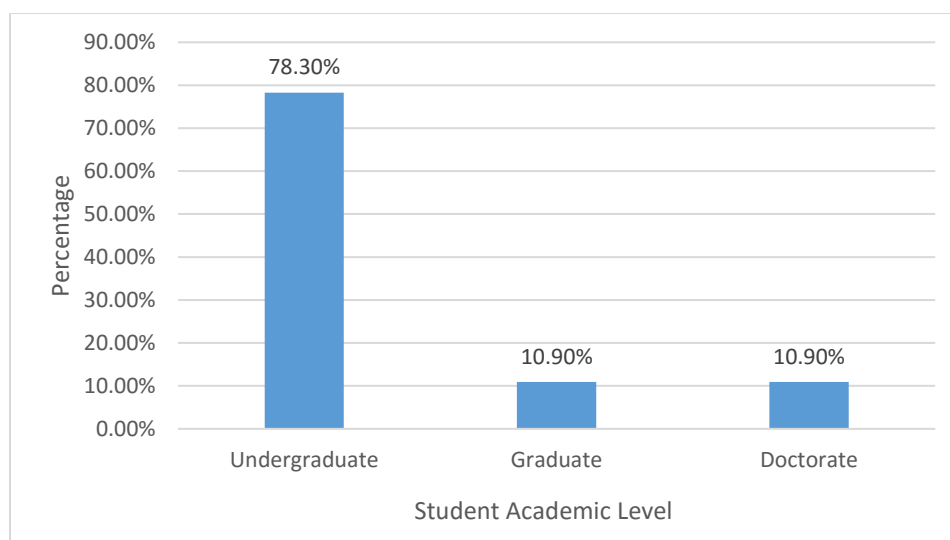


Figure 2. Student frequency distribution for number years in college. Graphic shows that more than half of students have been attending collage for 3–5 years.



*Figure 3.* Frequency distribution of academic department participation. Graphic shows that the majority of participants, 66.5%, are attending college in the school of business.



*Figure 4.* Frequency distribution of student academic level participation. Graphic shows that the majority of students, 76.9%, are undergraduates.

Demographic data on faculty members is presented in this section. The population of faculty members selected to participate in this study were selected after working with the Institutional Research Department to determine those faculty members who have taught a blended learning course between 2012 and 2016. An email request for participation was sent out

to a total of 86 full-time faculty members across all departments of the university. A total of 30 individuals responded to the survey for an average 34% response rate. As represented in Table 4 the majority of faculty members participating in the survey, 58.6%, were in the age range of 47- years of age or older. The age category was divided into increments of 5 years per age group. When considering demographic information Patten (2011) suggests too many demographic questions can appear intrusive to the survey taker. In such cases where a response is requested about the individual's age, it is preferred that a range of ages be presented to avoid over or understatement of the category's significance.

Table 4

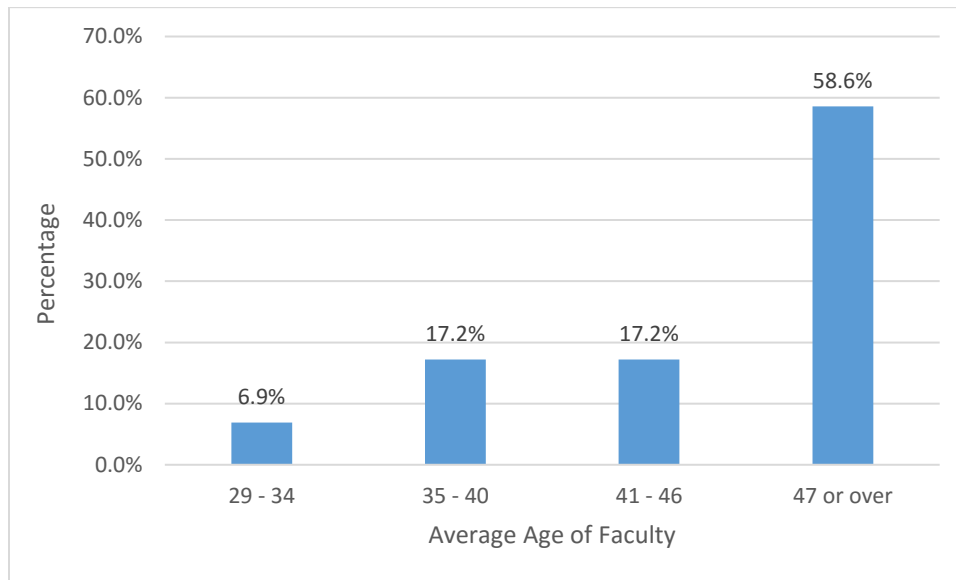
*Demographic Characteristics of Faculty Participants (N = 30)*

Characteristic	N	%
<b>Age</b>		
29 - 34	2	6.9
35 - 40	5	17.2
41 - 46	5	17.2
47 or over	17	58.6
<b>Instruction</b>		
1-5 yrs.	7	23.3
6-11 yrs.	11	36.7
12-17 yrs.	6	20.0
17 or more	6	20.0
<b>Department</b>		
HSBA	16	69.6
DSE	3	13.0
SMD	2	8.7
FSNH	2	8.7

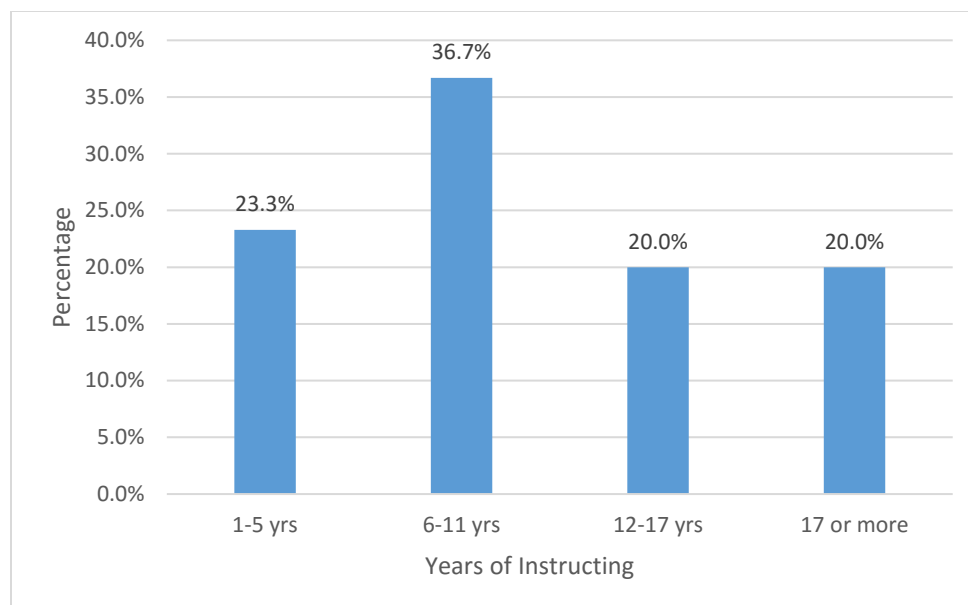
Note. Percentages are based on valid percentages reported.

Faculty age 41–46 and age 35–40 represented (17.2%) respectively of faculty members who completed the questionnaire. Faculty members under the age of 35 represented only (6.9%) of those faculty members who completed the questionnaire. The largest number of faculty who completed the, (69.6%), were faculty members from the school of business. Other department

members who participated in the survey represented 13% of engineering school and 6.7% from all other departments respectively. The majority of faculty members participating in the study responded that they have been instructing for 6–11 years. This represents (36.7%) or nearly a fourth of all faculty members in the study.



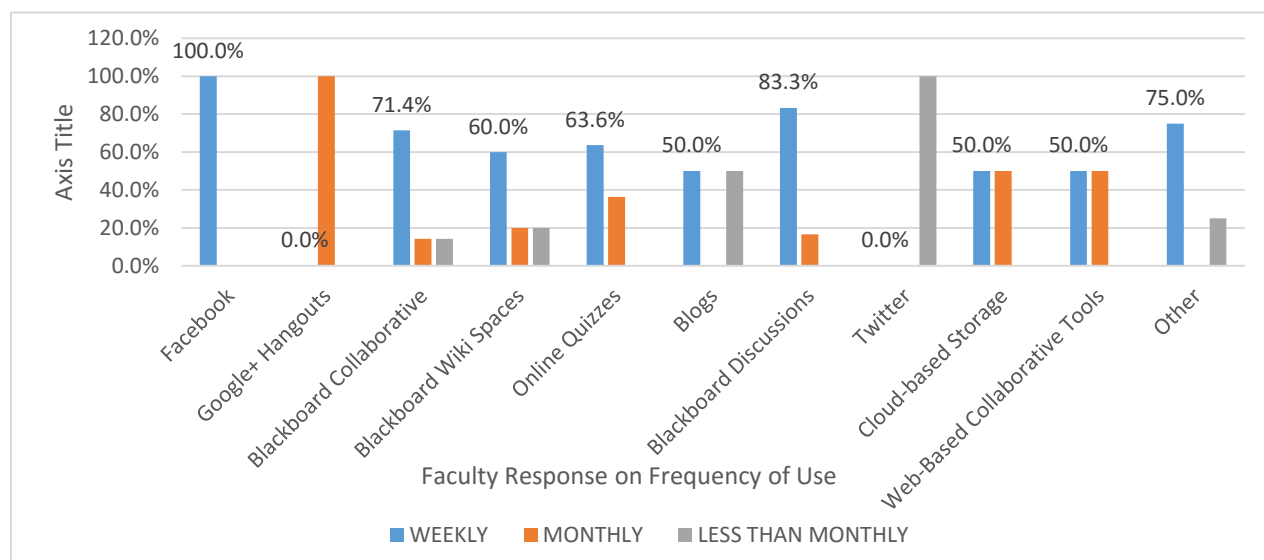
*Figure 5.* Frequency distribution of faculty member age.



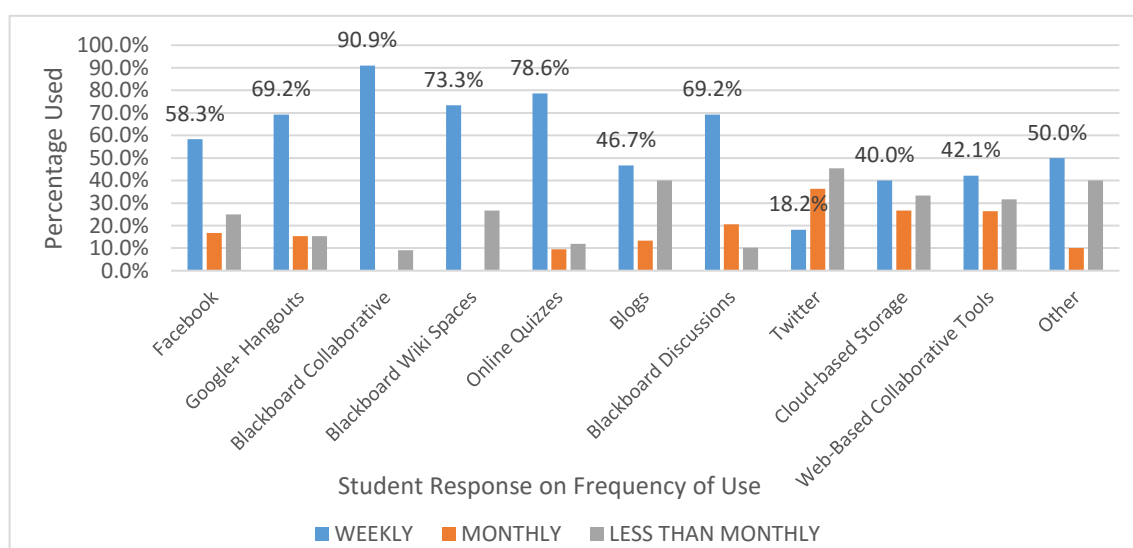
*Figure 6.* Frequency distribution of faculty years of instruction.

**Descriptive Data Analysis.** The following section provides descriptive data analysis of faculty and student responses. Descriptive statistics is defined as a form of statistical analysis that describes samples of subjects in terms of the variables or combination of variables used (Tabachnick & Fidell, 2013). For this study descriptive statistics are used a parameter estimate of central tendency for the population under study. Results from the survey instrument are used to provide descriptive analysis of student and faculty perceptions of frequency of use, usefulness, preparedness, and satisfaction of their experience a blended learning environment.

Within the survey, students and faculty were asked to provide their inputs on the frequency web-based tools used in courses they take or instruct. A listing of commonly used web-based learning tools were compiled based in review of the literature and knowledge of the web-based learning tools presently available on the campus where the research was conducted. Students and faculty were first asked to select from a list of web-based tools. Then select the frequency that tool is used in their coursework.



*Figure 7.* Faculty response to frequency of web-based learning tool use. The graphic shows that for all those who responded, 90.9% used Blackboard Collaborative on a weekly basis.



*Figure 8.* Student response to frequency of web-based learning tool use.

Students and faculty were next asked to provide feedback on their satisfaction with the support provided by the institution's technical support staff for web-based tools in the completion of their coursework. A five point Likert scale was used to obtain quantitative data



from individual responses. The categories of satisfaction used for the Likert scale ranged from extremely to extremely dissatisfied. Based on analysis of students input, the majority of students are satisfied with the technical support received from their institution's technical support team. Satisfaction with technical support represented 46% of all responses. Very few were dissatisfied, 5%, or extremely dissatisfied, 3%, with the level of support they received.

Table 5

*Student Satisfaction with Technical Support (N = 222)*

	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely satisfied	48	21.3	21.6	21.6
Somewhat satisfied	52	23.1	23.4	45.0
Valid Satisfied	103	45.8	46.4	91.4
Somewhat Dissatisfied	12	5.3	5.4	96.8
Extremely dissatisfied	7	3.1	3.2	100.0

Note. Percentages are based on valid percentages reported.

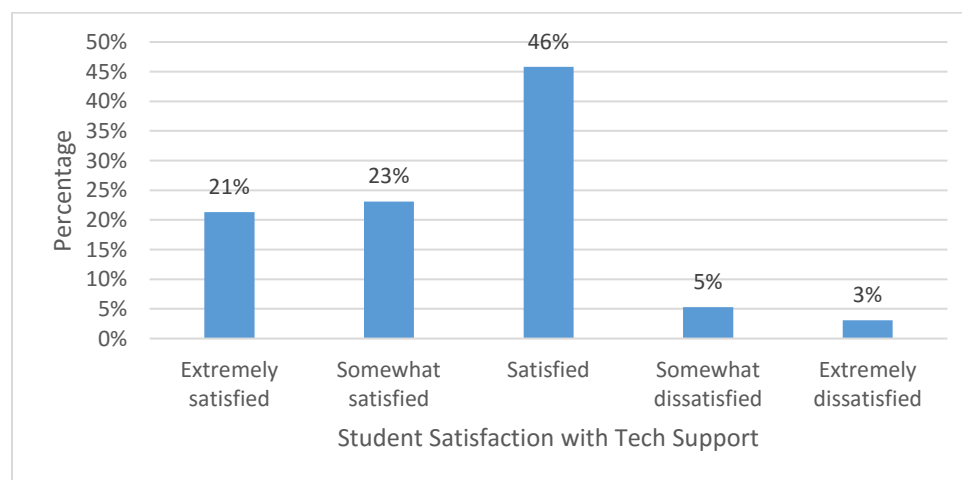


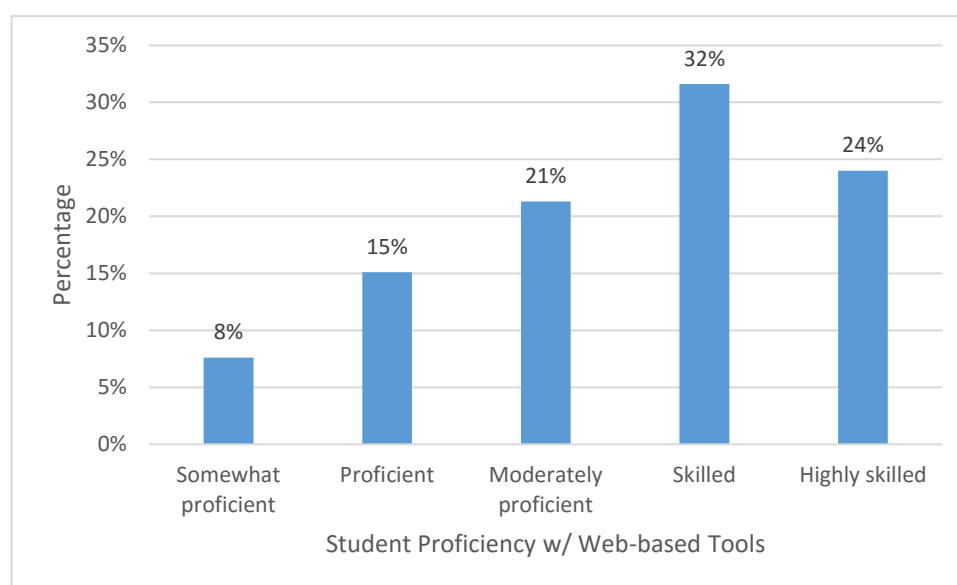
Figure 9. Frequency distribution of student satisfaction with technical support received.

Table 6

*Student Preparedness with Web-based Technology in Courses (N = 224)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat proficient	17	7.6	7.6	7.6
	Proficient	34	15.1	15.2	22.8
	Moderately proficient	48	21.3	21.4	44.2
	Skilled	71	31.6	31.7	75.9
	Highly skilled	54	24.0	24.1	100.0

Note. This table shows what student perceptions of their own ability to use web-based tools in coursework to be.



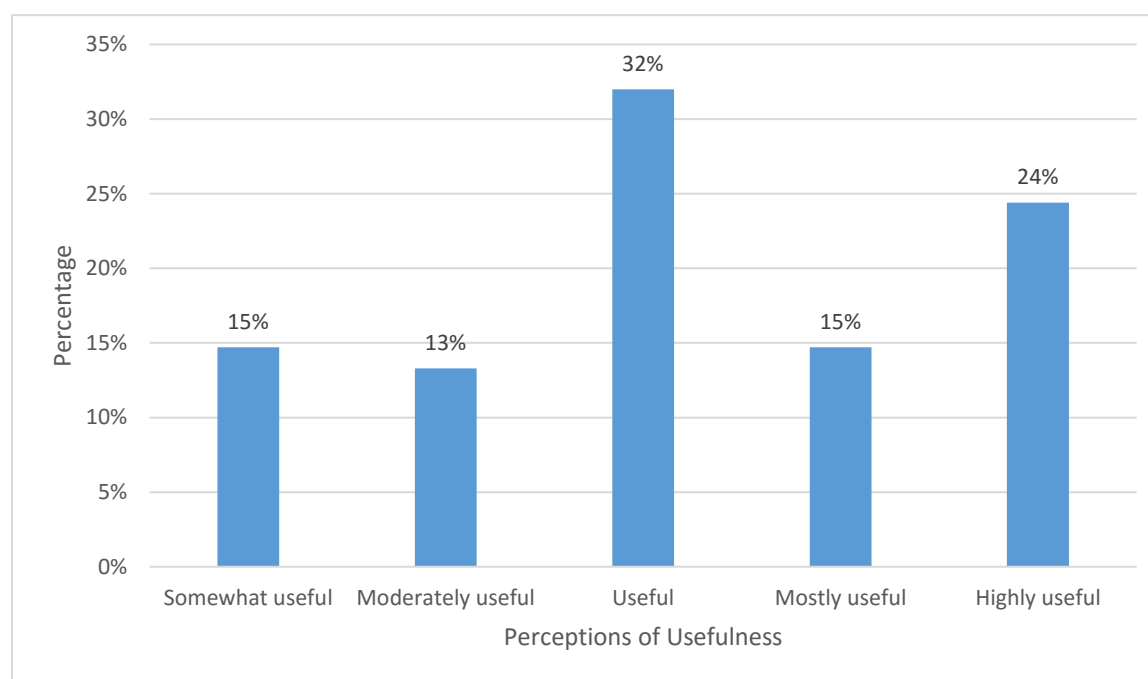
*Figure 10.* Frequency distribution of student perceptions of their proficiency with web-based learning tools.

Table 7

*Students Perception of Technology Usefulness in Courses (N=223)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat useful	33	14.7	14.8	14.8
	Moderately useful	30	13.3	13.5	28.3
	Useful	72	32.0	32.3	60.5
	Mostly useful	33	14.7	14.8	75.3
	Highly useful	55	24.4	24.7	100.0

Note. Student perceptions of the usefulness of web-based tools in the course of learning.



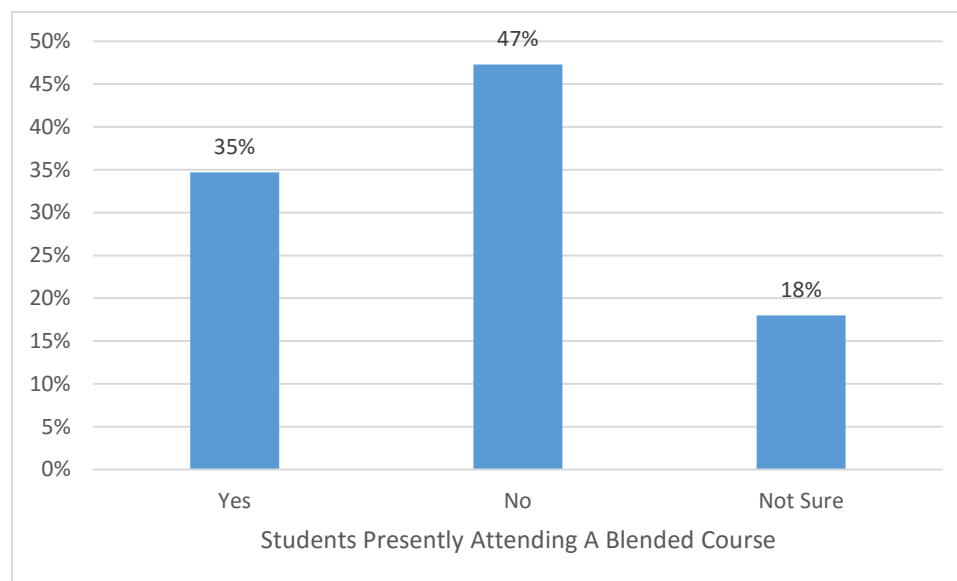
*Figure 11.* Frequency distribution of student perceptions of the usefulness of web-based learning tools in coursework.

Table 8

*Students Presently Attending a Blended Course (N = 222)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	77	34.2	34.7	34.7
	No	105	46.7	47.3	82.0
	Not Sure	40	17.8	18.0	100.0
	Total	222	98.7	100.0	
Missing	System	3	1.3		

Note. Student response to whether they are presently attending a blended learning course.



*Figure 12.* Frequency distribution of student responses to whether they are presently attending a blended learning course.

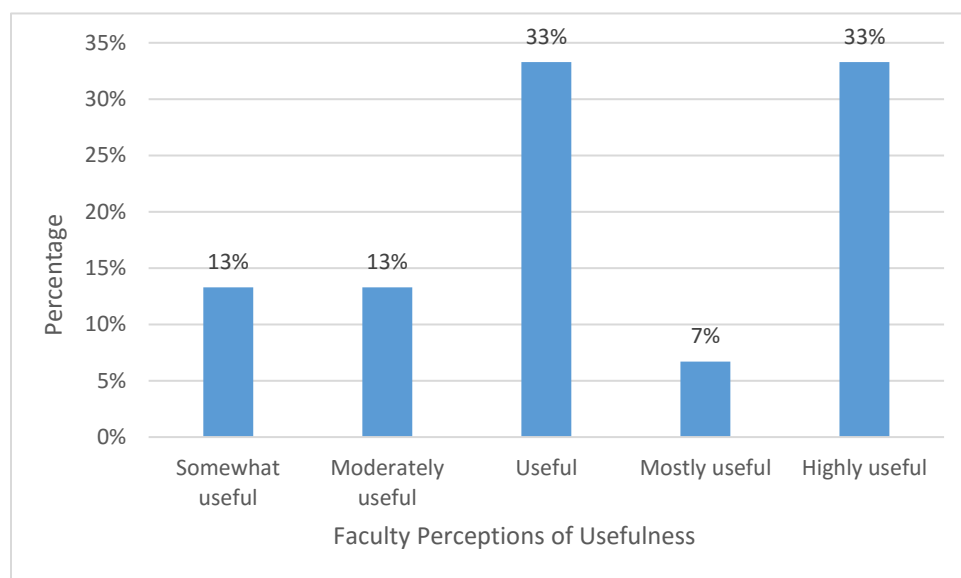
This section reports on faculty responses to questions asked in the questionnaire related to perceptions of usefulness, preparedness, and satisfaction with web-based technologies used in coursework.

Table 9

*Faculty Perceptions of Web-based Technologies Usefulness in Course Instruction*

	Frequency	Percent	Valid Percent	Cumulative Percent
Somewhat useful	4	13.3%	13.3%	13.3%
Moderately useful	4	13.3%	13.3%	26.7%
Valid Useful	10	33.3%	33.3%	60.0%
Mostly useful	2	6.7%	6.7%	66.7%
Highly useful	10	33.3%	33.3%	100.0%

Note. Frequency of how useful faculty found web-based technologies to be in coursework.



*Figure 13.* Frequency distribution of faculty responses to web-based tools usefulness in providing instruction.

In order to understand faculty perceptions of student ability with the web-based tools used in the course of instruction, they were asked to rate the proficiency of their students. A Likert scale was categorized using somewhat proficient on the low end to highly skilled on the high end. Results of the study found that most faculty members believed their students were only

moderately proficient with the web-based learning tools used in their courses. Nearly half of faculty (43.3%) believed their students were only moderately proficient with the web-based learning tools used. A limited number of faculty (3.3%) found their students to be highly skilled in the use of the web-based tools they presently use in the course of instruction.

Table 10

*Faculty Perceptions of Student Proficiency with Web-based Learning Tools*

	Frequency	Percent	Valid Percent	Cumulative Percent
Somewhat proficient	8	26.7%	26.7%	26.7%
Proficient	4	13.3%	13.3%	40.0%
Valid Moderately proficient	13	43.3%	43.3%	83.3%
Skilled	4	13.3%	13.3%	96.7%
Highly skilled	1	3.3%	3.3%	100.0%

Note. Majority of faculty felt moderately proficient with web-based learning tools

When faculty members were questioned about their own proficiency with web-based learning tools used to conduct their courses, they were more assured of their own ability. When questioned how proficient are you with web-based learning tools 40% of faculty members rated themselves as moderately proficient. Nearly a third of those questioned, 26.7% believed they were highly skilled in the use of web-based learning tools used in the course of instruction.

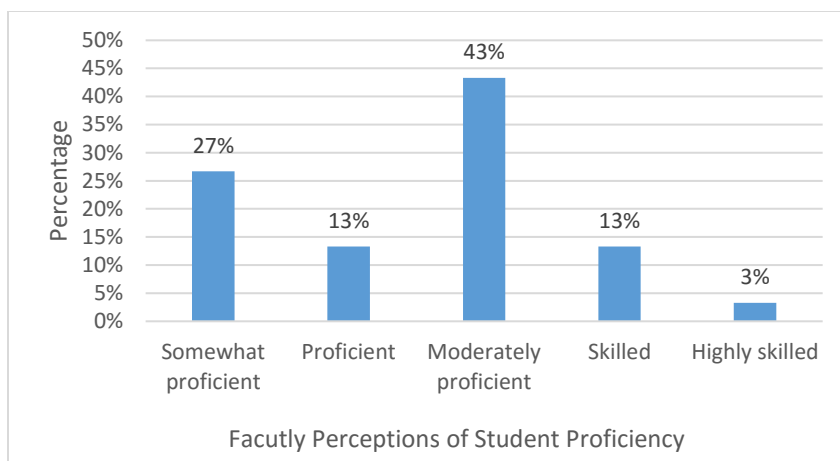


Figure 14. Frequency distribution of faculty perceptions of student proficiency with web-based learning tools.

Table 11

*Faculty Perception of Their Own Proficiency with Web-based Learning Tools*

	Frequency	Percent	Valid Percent	Cumulative Percent
Somewhat proficient	4	13.3%	13.3%	13.3%
Proficient	2	6.7%	6.7%	20.0%
Valid Moderately proficient	12	40.0%	40.0%	60.0%
Skilled	4	13.3%	13.3%	73.3%
Highly skilled	8	26.7%	26.7%	100.0%

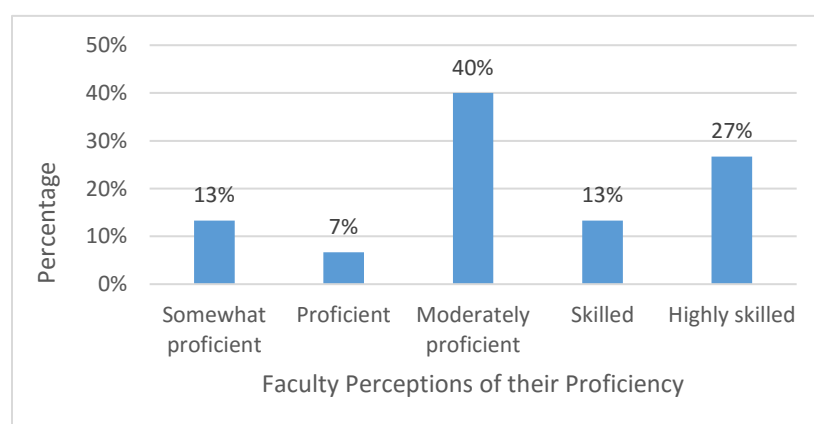


Figure 15. Frequency distribution of faculty perceptions of their own proficiency with web-based learning tools.

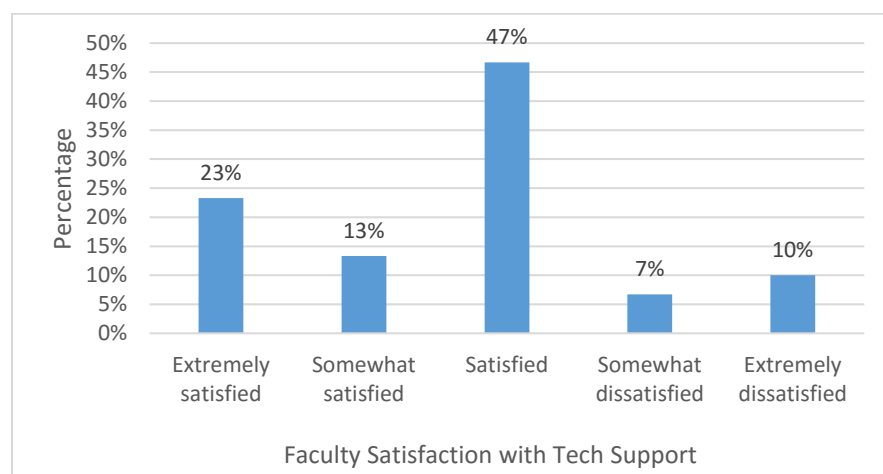
The majority of faculty members, 46.7%, were satisfied with the support provided by the institution for blended learning programs conducted at their university. Ten percent of faculty were extremely dissatisfied with support while and another 23% felt extremely satisfied.

Table 12

*Faculty Satisfaction with Institutional Support of Blended Learning*

	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely satisfied	7	23.3%	23.3%	23.3%
Somewhat satisfied	4	13.3%	13.3%	36.7%
Valid Satisfied	14	46.7%	46.7%	83.3%
Somewhat dissatisfied	2	6.7%	6.7%	90.0%
Extremely dissatisfied	3	10.0%	10.0%	100.0%

When faculty members were questioned about their perceptions of student satisfaction with institutional support for blended learning most, 44.8%, felt students were satisfied. Faculty members felt only slightly more satisfied with institutional support than what they believed students perceptions of satisfaction would be if asked the same question.



*Figure 16.* Frequency distribution of faculty satisfaction with technical support provided by the institution.

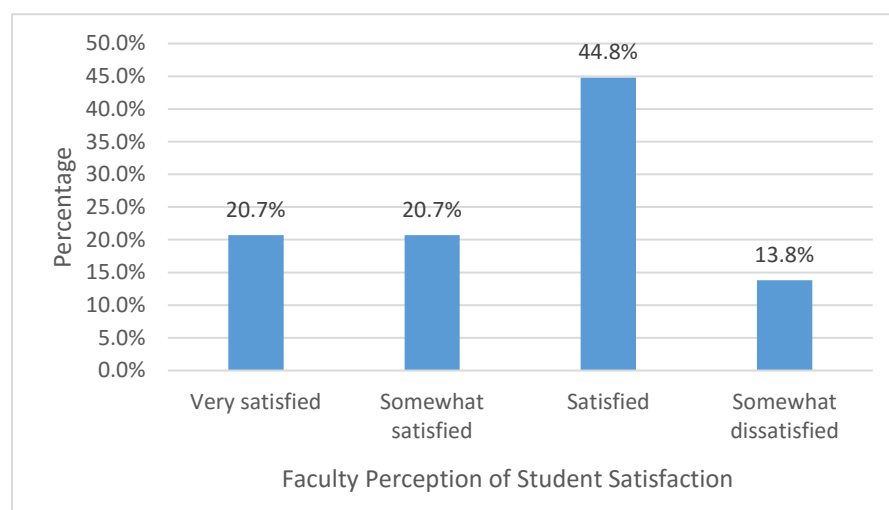


Table 13

*Faculty Perception of Student Satisfaction with Web-based Learning Tools*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very satisfied	6	20.0%	20.7%	20.7%
	Somewhat satisfied	6	20.0%	20.7%	41.4%
	Satisfied	13	43.3%	44.8%	86.2%
	Somewhat dissatisfied	4	13.3%	13.8%	100.0%

Note. Majority of faculty perceived most students were satisfied with web-based learning

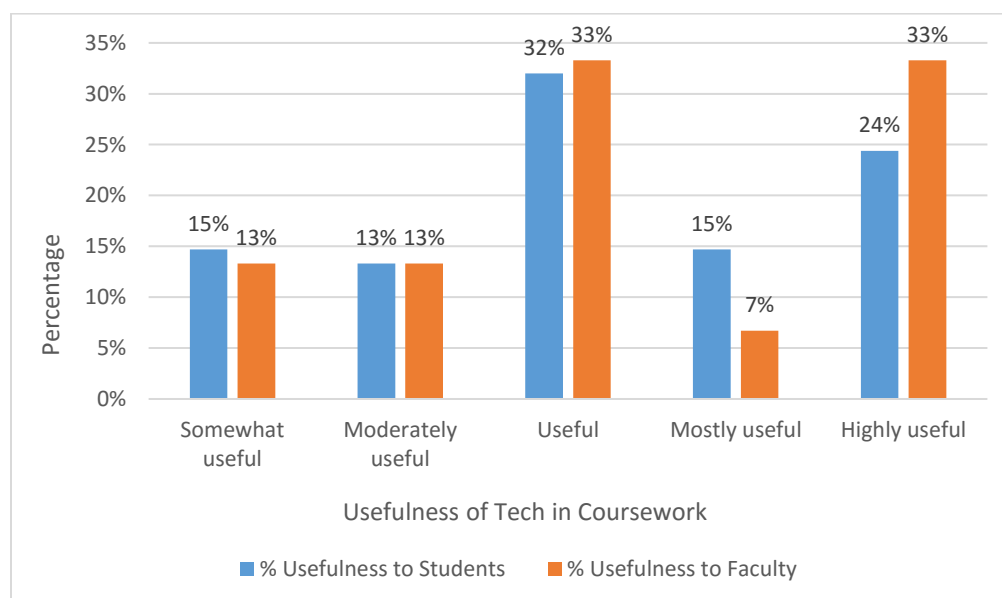


*Figure 17.* Frequency distribution of faculty perception of student satisfaction with web-based learning.

### **Inferential Data Analysis**

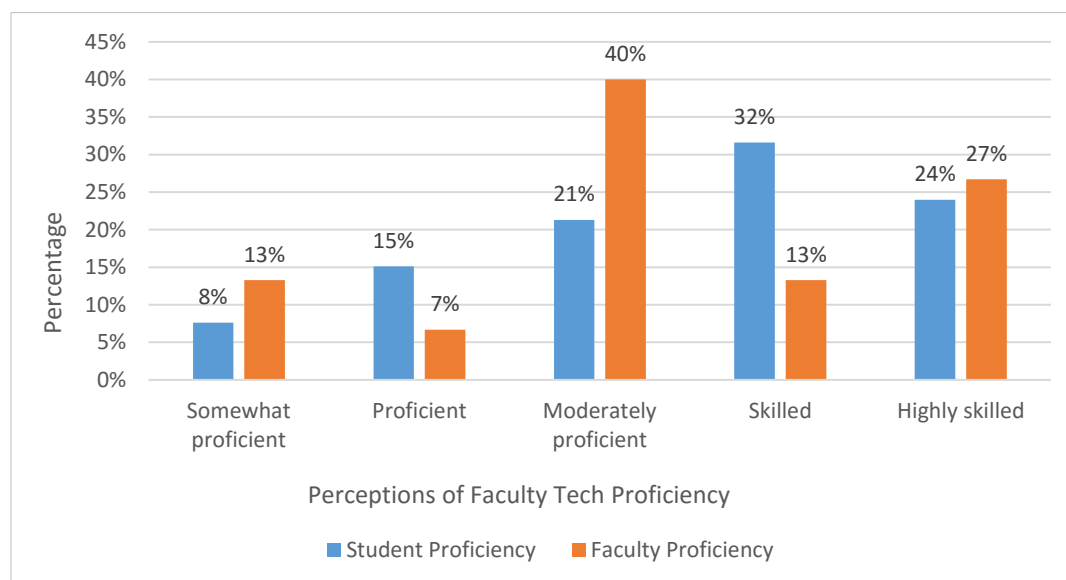
This section reports on inferential data that compares mean scores of student and faculty responses to questions related their perceptions of usefulness, preparedness, and satisfaction with blended learning. Tabachnick and Fidell (2013) define the purpose of inferential statistics as the testing of hypotheses about differences in populations based on measurement of samples and subjects.

Data collected for this portion of the analysis represents the combined data files of student and faculty responses. Raw data collected from both questionnaires from the online tool were consolidated into a single Microsoft Excel file for initial analysis. Next, the data was imported into IBM's SPSS statistical analysis tool, assigned the appropriate variable names and designations. Descriptive analysis, specifically, frequency analysis was performed on the data and the following output reported.



*Figure 18.* Means distribution of faculty to student perceptions of technology's usefulness in the delivery of coursework.

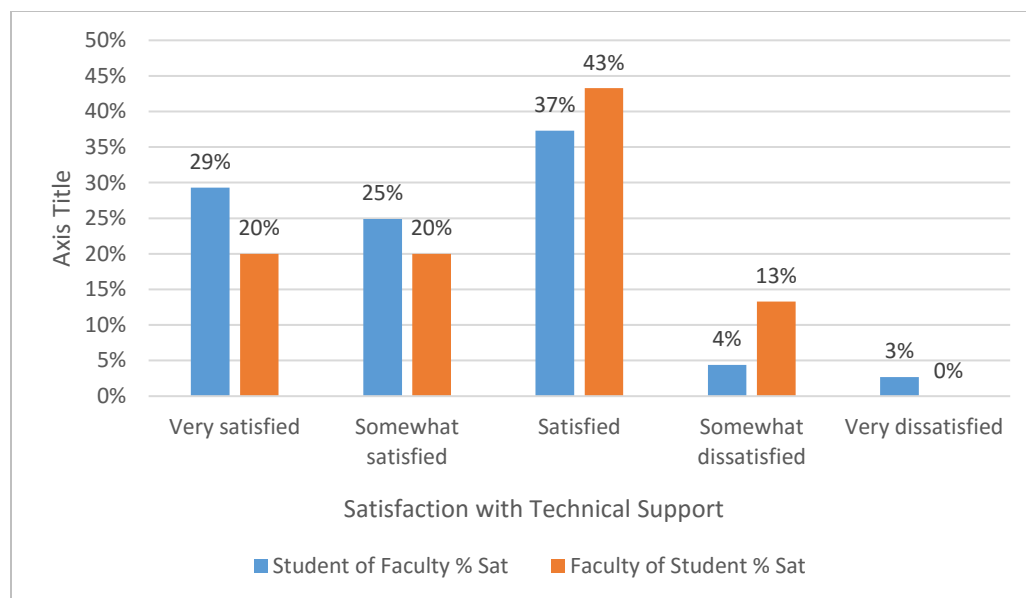
When asked how useful they felt web-based technology was in blended courses were they were students or taught, students and faculty are in close agreement on the matter. Faculty, 33%, and students, 32%, felt web-based technology was useful in blended courses they participated.



*Figure 19.* Means difference between faculty and student perceptions of faculty proficiency with web-based technology.

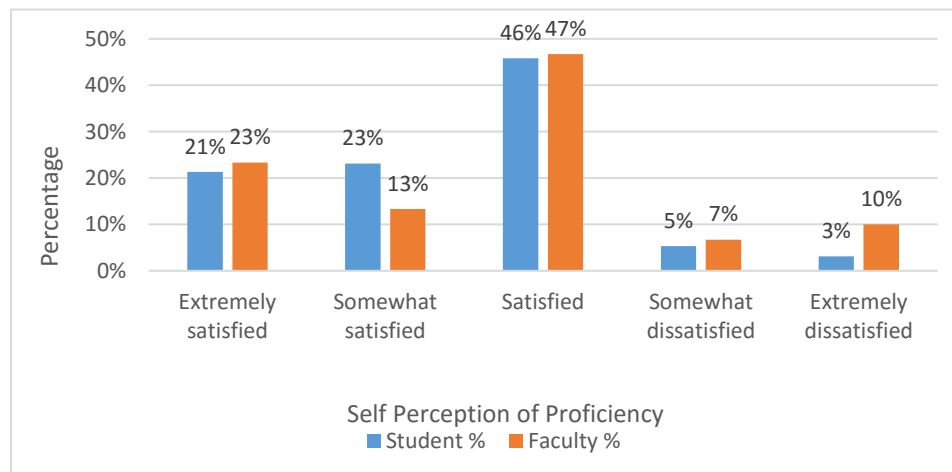
When comparing how they would rate faculty proficiency with web-based learning tools 40% of faculty members felt they were moderately proficient with the web-based tools used in the classroom. Only 21% of students however believed faculty were moderately proficient. Twenty-four percent of students felt faculty were highly skilled in the use of web-based technology used in blended courses. For faculty, 27% felt they were highly skilled with the web-based tools used in conducting classes.

Next, students and faculty were asked to provide quantitative feedback on how they perceived each other's satisfaction with the support provided by the institution for learning technology used. A Likert scale of 1 – 5 was used to measure the categories (very satisfied, somewhat satisfied, satisfied, somewhat dissatisfied, and very dissatisfied). Results show that faculty perceive student satisfaction to be greater 43%, than what students believe faculty's satisfaction is with the support provided. Students felt 37% of faculty were actually satisfied with the support provided by the institution were satisfied.



*Figure 20.* Means difference between faculty and student perceptions of each other's satisfaction with technical support.

Next, students and faculty were asked to rate their own satisfaction with technical support and the mean scores were reported. Students and faculty are in close agreement with their satisfaction with technical support. Student satisfaction with the technical support provided by the institution was 46% and 47% for faculty respectively. Another 21% of students and 23% of faculty found the technical support provided to be extremely satisfying.



*Figure 21.* Means difference between faculty and student perceptions of their individual proficiency with web-based technology.

Finally, independent t testing was performed on the data to test for statistical significance in the way students and faculty perceptions differ on several factors, and the mean and standard deviation reported.

Table 14

*Group Statistics of Independent Sample T-test Student N=222 Faculty N=30*

	Group	N	Mean	Std. Deviation	Std. Error Mean
Proficiency w/ web-based tech in courses	Faculty	30	3.333	1.3218	.2413
	Student	222	3.482	1.2209	.0819
Faculty proficiency w/ web-based tools in courses	Faculty	30	2.533	1.1366	.2075
	Student	221	3.398	1.2265	.0825
Satisfaction with technical support	Faculty	30	2.667	1.2130	.2215
	Student	220	2.450	.9942	.0670
Faculty satisfaction with technical support	Faculty	29	2.517	.9864	.1832
	Student	220	2.236	1.0242	.0690
Usefulness of web-based tech in courses	Faculty	30	3.333	1.4223	.2597
	Student	221	3.204	1.3515	.0909

Table 15 reveals that there was a significant difference in faculty ( $M = 2.533$ ,  $SD = 1.13$ ) and student ( $M = 1.2265$ ,  $SD = 1.2130$ ) perception scores for faculty proficiency with web-based tools;  $t(249) = -3.654$ ;  $p = .000$ . There was a not a significant difference in faculty ( $M = 2.667$ ,  $SD = 1.21$ ) and student ( $M = 2.450$ ,  $SD = .9942$ ) perception scores of their satisfaction with technical support;  $t(248) = 1.089$ ;  $p = .277$ . Finally, there was a not a significant difference in faculty ( $M = 2.517$ ,  $SD = .9864$ ) and student ( $M = 2.236$ ,  $SD = 1.0242$ ) perception scores of their satisfaction with technical support;  $t(247) = 1.394$ ;  $p = .165$ .

Table 15

*Independent Sample T-test*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	DF	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Proficiency w/ web-based tech in courses	Equal variances assumed	.037	.848	-.620	250	.536	-.1486	.2398	-.6210	.3237
	Equal variances not assumed			-.583	36.010	.563	-.1486	.2549	-.6655	.3682
Faculty proficiency w/ web-based tools in courses	Equal variances assumed	.630	.428	-3.654	249	.000	-.8649	.2367	1.3310	-.3987
	Equal variances not assumed			-3.873	38.765	.000	-.8649	.2233	1.3167	-.4131
Satisfaction with technical support	Equal variances assumed	1.124	.290	1.089	248	.277	.2167	.1989	-.1752	.6085
	Equal variances not assumed			.936	34.518	.356	.2167	.2314	-.2533	.6866
Faculty satisfaction with technical support	Equal variances assumed	.092	.762	1.394	247	.165	.2809	.2015	-.1160	.6777
	Equal variances not assumed			1.435	36.430	.160	.2809	.1957	-.1159	.6777
Usefulness of web-based tech in courses	Equal variances assumed	.329	.567	.490	249	.624	.1297	.2646	-.3914	.6509
	Equal variances not assumed			.471	36.472	.640	.1297	.2751	-.4280	.6875

Note. Table provides the mean score and standard deviation for student  $N = 30$ , faculty  $N = 222$

These results suggest that when comparing faculty and student perceptions of their blended learning experience, there is a difference in their perceptions of faculty proficiency. No statistically significant difference is shown for all other categories under study in this research.

In addition to assessing statistical difference, effect size was also determined. Effect size allows the researcher to quantify difference between groups by emphasizing the size of the

difference while avoiding confounding with sample size (Tabachnick & Fidell, 2013). Cohen's analysis of effects size was also performed on the resulting data to determine effect size (Abrami, Cohen, & d'Apollonia, 1998). The effect size for faculty's proficiency with web-based tools ( $d = -0.73$ ) is found to be high for Cohen's (1988) convention for large effect size. The effect size for student and faculty satisfaction with technical support ( $d = .19$ ) is found to be very low for Cohen's convention for effect size. Finally, the effect size for student and faculty perceptions of faculty's satisfaction with technical support ( $d = .27$ ) is found to be low for effect size.

### **Qualitative Data Analysis**

In researching the topic of student and faculty perceptions of blended learning, qualitative data was used to support the quantitative analysis of data collected. The use of coding as an abstract representation of an object (Corbin & Strauss, 2008) or to identify a recurring thematic occurrence throughout text responses (Bernard & Ryan, 2010), is an accompanying method of discovery with text-based responses. In the most basic sense, coding is the tagging of text with codes, indexing them, and ordering those codes to facilitate consolidation and evaluation for thematic, phenomenon, or case-based discovery. The descriptive narrative data captured through the questionnaire was organized in Microsoft Excel tables and coded based on common responses and used to discover thematic data submitted by both faculty and student respondents.

There were three questions within the survey that asked respondents to elaborate on the quantitative responses they provided. Faculty and students were first asked to respond to a specific question by selecting from a Likert scale of 1 – 5 items then further explain their response with a brief comment. The first question related to the use of web-based technology tools used in the delivery of courses taken or provided. Students and faculty were asked to select from a list of 10 web-based technologies commonly used as a computer-mediated means of

course delivery. They were then asked to select the frequency those tools were used in the course. Next, they were asked to explain in a brief statement how the web-based tools selected were being used to encourage engagement in the coursework. This section reports on the consolidated analysis of that narrative data and the themes that evolved from them.

Students and faculty were asked to the question, in what ways are web-based technologies being used to encourage engagement in the classroom. The most common faculty and student response was for collaboration, disunion, and communication. Faculty members stated the web-based technology was primarily used for discussion and collaboration between faculty and students and students in their peers through computer-mediated means. Haythornthwaite (2006) defines computer-mediated collaboration as the coming together to achieve a common goal with the intent of constructing knowledge, enhancing problem articulation, and gaining information from a group of individual peers using some form of computer-mediated communication in an asynchronous or synchronous mode. Several responses related to collaboration echoed the theme of engaging in discussions.

For example, many comments by faculty highlighted the use of web-based to engage students in discussions. One such response by a faculty members stated “Utilizing Blackboard as a way to collaborate with students weekly for discussion board questions and to administer exams. I typically include a web based you tube tutorial that applies to each chapter in addition to lecture.” Student responses mirrored that of their faculty to this question. Student responses most commonly found referred to discussion and collaboration equally. For example, one student responded, “they use email, blackboard announcements, blogs, discussions, and Blackboard Collaborate notifications to ensure you are kept up with the speed of the class and participating as actively as possible.”



Faculty equally viewed the use of the web-based technology used in courses as a collaborative tool that could be used for discussion and reflection. Overall, both faculty and students found web-based technology more of a collaborative and discussion-generating tool than simply a means of assigning work or taking quizzes; although these were also mentioned in their feedback. Within the Community of Inquiry theory, social presence is built upon open communication that supports the enabling of risk-free expression that encourages collaboration of expression and camaraderie (Garrison & Vaughan, 2008). The importance of this factor in the blended learning environment was very evident in the responses provide by both faculty and students. The second question asked of students and faculty related to their satisfaction with the technical support provided on campus for web-based technologies used in the classroom. When questioned, how would you rate your satisfaction with technical support provided for web-based technology on your campus students and faculty once again found agreement with most being satisfied with the support received.

Students and faculty were both satisfied with technical support but had issues with the technology itself. For instance, student comments such as “I hardly ever have to contact support but when I do they help me fix the issue,” and “The technology could be better but the support is very helpful,” were common themes throughout the text. Student comments more commonly focused the failure of the technology itself. Several commented, “The computers continued to mess up and I don’t think there is enough technology in the classrooms.”

Faculty responses were very complementary of the support staff. One faculty member commented, “They are always reliable with solutions that work and cheerful too, yet they were more critical of the variety of web-based solutions available on campus.” One faculty member commented, “The classroom infrastructure is seriously lacking to support blended initiatives.” In

the final question, students and faculty were asked to provide feedback on their perceptions of student satisfaction with the learning technologies used in their coursework.

Major themes identified in narrative responses by faculty and students to this question of student satisfaction with web-based technology in blended courses were flexibility, ease of use and the empowerment of students. There are several categories within the blended learning system. There are enabling blends, enhancing blends, and transforming blends (Bonk & Graham, 2006). Enabling blends focus on providing additional flexibility to the learners and attempts to offer greater opportunities in the learning experience with different modalities. Several responses to this question of student satisfaction resembled this comment by a student "...flexibility and ability to access at any time convenient to the student." No responses provided were of the opinion that web-based technology in the classroom provided anything other than greater opportunity for enhanced learning experiences in a blended environment. Faculty comments such as "empowerment and career-ready achievement with technology," and "availability and lack of down time, were comments that reflected the majority of responses.

For students, convenience and flexibility appears to be the main factor in their satisfaction with learning technologies in a blended course. One student commented, "The ease of being able to do assignments from anywhere is a time convenience for me." Other comments reflected the need of some students for flexibility when it came to access and how web-based tools supported this aspect of the learning. One student commented "Flexibility, sharing information, openness from the professors to assist students to ensure understanding." This was representative of a recurring theme that ran throughout responses.

## **Summary**

Overall, narrative responses to questions asked in the survey suggest students and faculty agree that web-based tools in a blended environment provide opportunity for discussion, collaboration, and engagement between faculty and peers. While the technical support provided is considered satisfactory, both groups felt the present infrastructure and systems were inadequate to meet the needs of the blended learning environment. Perceptions of those factors that contribute most to the satisfaction of students with learning technologies in the blended environment were comparable between the two groups. Ease of use, availability, and accessibility at any time were the predominant themes across both groups. Factors identified by both students and faculty that contribute to their satisfaction with blended learning also contribute to the ability both groups to collaborate within the blended learning environment.

## Chapter 5: Discussion and Conclusion

The practice of blended learning by some accounts has been around far longer than the term itself (Masie, 2006). As the use of technology in the classroom has grown, several definitions have emerged in the literature where the division of time in blended learning is the primary distinguishing factor (Orey, 2002; Osguthorpe & Graham, 2003; Rooney, 2003; Singh & Reed, 2001). For the purpose of this study blended learning is defined as, the combination of face-to-face instruction with computer-mediated instruction (Graham, 2006). This definition provides the most comprehensive definition of the state of blended learning as it relates to the web-based learning tools and systems available today. Computer-mediated methods used in the process of instruction are also broadly defined and requires a definition that allows for the distinguishing characteristics of technology used in blended learning to rise to the forefront of the conversation. McQuail (2005) defines computer-mediated communication as the communication made possible between two or more individuals utilizing two or more electronic devices.

The purpose of this quantitative survey research study was to explore the possibility of a statistically significant difference between faculty and student perceptions of usage, frequency, readiness and overall satisfaction in blended learning courses at a private liberal arts university in South Texas. The researcher hypothesized there would be no difference in student perceptions of the blended learning experience and web-based tools used in course work than those of the faculty that instruct them. The questions asked during the study proved useful in gaining this understanding.

The first research question addressed in the study asks whether a statistically significant difference in student and faculty perceptions with the use of web-based technologies in blended

course instruction was different. The findings suggest there is no significant difference in how each group views this aspect of their learning and instructing experience. The majority of respondents to the survey perceive collaboration and discussion to be the most beneficial aspects of providing instruction in this manner.

The second research question in the study sought to answer whether there were statistically significant differences in student and faculty perceptions with the frequency web-based technologies are used in blended course instruction. Results of the study indicate close agreement of student and faculty in this area. Based on qualitative responses to this question most agree that weekly use is the most frequent method of course delivery through web-based technologies such as Blackboard Collaborative and discussion groups.

The third question in the study revealed a difference in student and faculty perceptions of readiness in determining if there was a statistically significant difference in student and faculty perceptions of readiness to use web-based technologies in blended courses. While faculty and students felt prepared to engage with the web-based learning technology used, students were less confident in the ability of faculty to use the tools than faculty felt of themselves.

The final question presented to participants in this study asked whether there was a statistically significant difference in student and faculty, overall satisfaction with technical support provided for blended. This study shows that students and faculty agree in this area, yet suggestions for improvement in the areas of training and time to train are concerns for students and faculty alike.

## Discussion

Findings in this study indicate that there is no significant difference in student and faculty perceptions of the frequency, use, and satisfaction with blended learning and the web-based tools used in blended learning. There was however, a significant difference in student and faculty perceptions of faculty preparedness to use web-based technology in the blended environment. Blended learning has emerged as one of the greatest pedagogical shifts in higher education instruction in the past half-century due in part to the rapid emergence of digital technologies. Acceptance of blended learning has been slow at the higher education level (Bonk & Graham, 2006). The blended learning imperative, as described by Masie (2006) suggests that all academic levels should embrace this new educational norm to the extent we no longer use blended in any reference to it in the same way the letter “e” should be removed when referring to e-learning. By observing blended learning through the Community of Inquiry (COI) lens, recognition of the need for student and faculty agreement of blended learning’s value is more evident. Within this framework a thoughtful fusion of face-to-face and computer-mediated modalities, less defined by time spent online, can be brought together to form a community of better learners and teachers.

Within Community of inquiry theory, teacher presence is defined as the ability of the instructor to facilitate communication within the community of learners (Garrison & Vaughan, 2008). To accomplish this task, student and faculty perceptions of use, satisfaction, and proficiency with the web-based learning tools used should be comparatively close. Results from this study indicate that student and faculty perceptions of the usefulness of web-based learning tools is comparatively similar. The facilitation of instruction is how teacher presence is formed within the classroom setting (Garrison & Vaughan, 2008). As in any form of communication, whether in synchronous or asynchronous form, reception of the facilitation is made more likely

when reception of the method of communication is valued equally among participants. Often times how an individual perceives the usefulness of instruction is dependent upon their view of how facilitation of the process of instruction is performed. The design, facilitation, direction, and facilitation of blended courses are crucial to successful implementation (Garrison & Vaughan, 2008).

In a study of student's perceptions of the Blackboard web-based learning tool Landry, Griffeth, and Hartman (2006) found that student perceptions of the usefulness of Blackboard as a web-based learning tool for lectures, announcements, and quizzes to be useful. Students cited that discussion boards, external web sites, and faculty information or emailing were very helpful. Substantiation of these results of student perceptions are indicated in table 16 above that show the percentage of students in this study who found Blackboard to be a useful tool in the course of instruction provided at the university.

Within in this study usefulness was based on individual perception of the tools used in the course of blended instruction. Usefulness is strictly the opinion of users at a given point in time. The views of participants represent a snapshot of their views of a particular learning tool at a given time. Several web-based learning tools were presented in the study to students and faculty. Both student and faculty agreed that web-based technologies used for communication and collaboration in the blended environment useful in the course of instruction.

Perception of usefulness for faculty and students within the study show each group believed web-based learning technologies used in blended learning to be useful or highly useful. This sense of usefulness can affect student perceptions of blended learning regardless of the student's learning style. For example, in a study by Akkoyunlu and Soylu (2008) the researchers used a two-instrument tool to identify students' views of blended learning. The results of their

study showed that student views of ease of use, web environment and the blended process were not significantly different when based on student learning styles. When student's perceptions of usefulness of a web-based learning tools are drastically different from the faculty the ability to facilitate discourse, structure content, and maintain an open climate of communication is hindered (Garrison & Vaughan, 2008). Another aspect of student and faculty perceptions of usefulness considered was the type communication media being used to conduct the course.

Media richness theory is often used to study formal and informal business and in interpersonal communications. Media richness theory defines communication on a linear scale. There are subdivisions that range from communication that occurs face-to-face to those supported by computer systems. The premise of the theory is that communication ambiguity can be related to the level of richness in the media used in the act of communication (Daft & Lengel, 1986). The theory does have its critics who suggest social and cultural factors are not given significant enough consideration in the model as it relates to preference (Lee, 2000). This does not suggest that when the model is used in considering specific populations its use is ineffective. Another aspect derived from perceptions of usefulness is the satisfaction with support provided.

In this study the researcher found that student and faculty perceptions of satisfaction with support provided by the institution for web-based learning tools used in a blended learning coursework to be closely rated. 21% of students and 23% of faculty rated their satisfaction as extremely satisfied when questioned concerning support provided. This is also notable in the qualitative responses provided by both groups. One reason for a failed implementation of a blended environment is the lack of technical support. Hofmann (2006) suggests that simply viewing the implementation of blended learning courses as a technical endeavor limits the scope and fails to take into account such things as training and technical support needed to sustain users



who participate in these type courses. The need for this support is evident in several student responses included statements such as “every time I had a question they were always available and eager to help; use of the 24-hour help line is really important.” Faculty responses also included comments such as”; “they are always reliable with solutions that work and cheerful” and “the instructional technology department does a wonderful job of conducting training.” There were some comments by both groups that suggest time and training are important considerations as well. One faculty member commented; “the ability to attend training offered by the instructional technology department is limited because of scheduling conflicts and being located off main-campus.” A student commented, “...faculty assumes students already know how to use the technology and often times the faculty member is a novice.” Based on student and faculty responses indicate that providing resources with the necessary training and technical support are very important factors that contribute to individual satisfaction with technical support.

Another vital aspect of the development of teacher presence in the community of inquiry is the ability of the facilitator to be proficient with the web-based learning tools used. In this study, there was a significant difference in student’s perceptions of faculty proficiency and what faculty perceived their proficiency to be. When both students and faculty were asked how they would rate faculty’s proficiency with web-based learning tools, there was a statistically significant difference between the two views. Distinctions here maybe a result of the type web-based tool used and the frequency at which the faculty member interacts with the student through it.

Historically the introduction of new instructional technologies has been driven by advancements in network and computer technologies that made distribution of the technology

more available. Throughout the 1960s and 1970s, when mainframe computing was the primary technology used in instructional delivery, developers and instructional designers could manage the delivery of content in a more controlled manner (Bersin, 2004). In effect, they could manage how much content could be delivered and from what resource that content came. Today the ubiquitous nature of technology in higher education today is forcing academic developers to reexamine their existing delivery methods (Donnelly & McAvinia, 2012).

Hofmann (2006) posits there are several reasons blended learning has not yet fulfilled promises of large returns on investment. In part, this generation of users has grown up using technology and has become very technically perceptive. There is however still a need for comprehension in the use of technology that is needed on the part of the student and the instructor. Within the study, students and faculty perceived their individual ability to use web-based learning tools to be satisfactory. When asked how each perceived the other's ability, there was a significant difference in how students viewed faculty preparedness with web-based learning tools than what faculty perceived of themselves. This perspective may be a result of the slow adoption of newer web-based technologies in the classroom.

Hofmann (2006) proposes a lack of foresight is a hindrance in the adoption of blended learning. Many programs are simply an accumulation of strung together standalone components that do not take into account the difficulty of redesigning programs into a blended experience. Blackboard was the primary source of instructional delivery tool used in this study. This modulated system brings together several components under the umbrella of Blackboards instructional design. This is not to say the system primarily used by faculty is a hindrance. In fact, Blackboard Collaborative was the weekly tool of use for 90% of students and 83% of

faculty. It should be noted that Blackboard is the web-based learning technology provided by the institution at no cost to faculty members.

Issues that exist with the support and training of faculty include time demands on the instructor, providing training with current technology, changing organizational culture, and professional training for online instructors (Bonk & Graham, 2006). Another problem identified by Hofmann (2006) is the lack of formal training for faculty and teams in facilitation of blended courses. Student and faculty satisfaction with technical support provided by the institution suggests more opportunities for training should be provided. A faculty member commented that timing and location of the training is a prohibitive issue that prevents them from seeking additional training with web-based learning tools.

Finally, Hofmann (2006) suggests support of the blended learning experience is necessary to enhance organizational understanding of the blended environment. The need for formally designed instruction that provides faculty and inexperienced learners training is a vital component of what Bonk and Graham (2006) suggest is an imbalance between innovation and production. No tool is a panacea for the engagement of the demographically changing population of students entering into higher education institutions today. A theoretical framework such as provided by the Community of Inquiry theory is necessary to inform the practice and coherently blend all aspects of face-to-face and online instruction to meet course objectives.

**Community of inquiry theory.** Most social and professional communication that occurs today is conducted through some form of computer-mediated means. In most cases that method is web-based. Several web-based learning tools are used in this study to narrow the scope of the study to those tools used in the course of blended instruction. Community of inquiry suggests the most important elements of an affective higher education experience are teacher presence, social

presence, and Cognitive presence (Garrison & Vaughan, 2008). Through disciplined, purposeful, and open collaboration, the Community of Inquiry (COI) framework can assist university administrators and instructional designers bridge a perceptual gap between students and faculty concerning the use, frequency, readiness, and satisfaction with the blended learning experience using web-based technology.

The community of inquiry framework is grounded in the progressive understandings of John Dewey's constructivist perspective of learning (Swan, Garrison, & Richardson, 2009). The framework provides a lens through which communication conducted using face-to-face and computer-mediated methods can be assessed. Garrison and Vaughan (2008) definition COI theory has evolved to mean a recursive model in which an educational community or formally constituted group of individuals connect with the purpose and intent of working collaboratively toward an intended learning goal or outcome.

The use of COI as a framework from which blended learning can be studied is evident throughout the literature. It continues to be used because of its focus on ways community instruction can be conducted. The three pillars of the framework, social presence, teaching presence, and Cognitive presence support the conceptual use of web-based tools since each of these characteristics of COI can be influenced in some way by the technology web-based learning tools use.

**Social presence and web-based technologies.** Social presence in a blended learning environment is created with the web-based technologies used to bring geographically distant learners into the community of inquiry. Blended learning within a community of learners represents the formally constituted group of individuals brought together for the purpose of collaborative engagement towards greater understanding of an intended learning objective or

outcome (Garrison & Vaughan, 2008). Communication with this community of learners should provide an open forum that enables risk-free expression and encourages collaboration. Based on these results and comments provided in student and faculty narrative responses concerning training, additional instruction for students and faculty with these tools can be used to encourage and enhance open communication in the blended learning courses taught.

Social presence was achieved by faculty and students in this study primarily through the weekly use of Blackboard discussion and collaborative tools. Several faculty members indicated the use of web-based learning technologies in course instruction as a means of engaging students. Blackboard was used for distribution of quizzes and posting of discussion questions. Based on student inputs they found the use of Blackboard more a means of engaging with their instructor than amongst their peers. Within the COI social presence is dependent upon engagement by all members of the learning community (Garrison & Vaughan, 2008). Discourse in blended learning places a great deal of the learning responsibility on the individual. How individuals engage with each other can either enhance or shrink individual presence within the community of learners.

**Teacher presence and preparedness.** Teacher presence in the COI framework is the foundational design, structure, and facilitation that creates a worthwhile educational experience for all members of the community of inquiry (Garrison & Vaughan, 2008). Students participating in a course using web-based learning tools, where the instructor is a strong facilitator, well prepared, and accessible, are generally more engaged (Graham, 2006). To produce an engaging environment perception of the facilitator's role and proficiency with the tools should be equitable amongst all participants of the community of learners.

Within this study, there was a significant difference between student perceptions of faculty proficiency with web-based learning tools. Twenty-one percent of students felt faculty were proficient with the web-based instruction tools used in courses they attended. Forty percent of faculty however believed they were proficient with the web-based tools used in the blended courses they instruct. This is an indication that perceptions of proficiency differ and a need for additional training is required to support the facilitation of curriculum design and facilitation by faculty. The disparity in responses should encourage additional research into how perceptions of proficiency with the use of web-based learning affects the ability of instructors to facilitate and create more supportive blended environments.

**Cognitive presence and satisfaction.** Blended learning requires Cognitive presence exist for all members participating within the community in order to engage in constructive discourse focused on a learning objective. Within the COI framework, Cognitive presence is an umbrella phrase that includes puzzlement, information exchange, and the connection of ideas and concepts used determine the viability of a proposed solution. How to maintain and foster cognitive learning is the area of COI that requires new research be done the most (Garrison & Vaughn, 2008). Advancements in networked and computer-mediated technologies have rapidly increased the amount and access of information available to society. Technology has not only saturated communication lines with information, it has also provided a level of anonymity to those that produce it in a way never before available (Turkle, 2011).

Blended learning's main objective is to engage students in a highly interactive environment supported by a number of learning modalities (Bonk & Graham, 2006). Achieving interactivity through computer-mediated methods and web-based learning tools is only part of what is required. Student perceptions of faculty proficiency with the tools used, frequency of use,

and satisfaction with such things as the technical support provided can affect the cognitive process. Additional research in this area can offer faculty, administrators, and instructional designers insight into how to achieve their common interest in creating an interactive, skilled community of learners.

### **Recommendations and Implications**

Many higher education institutions have narrowly viewed blended learning as a supplement to traditional forms of instruction by viewing it in terms of access and serving more students rather than serving current students (Garrison & Vaughan, 2008). Ongoing training for both faculty and students in the use of web-based learning tools used in the blended learning environment are vital to the successful implementation of any blended learning program. Availability of service is another important consideration for university administrators and instructional designers.

Implications for future studies will need to account for the large numbers of non-traditional students engage their work during off-hour and the shift to mobile technologies that allow for greater learning autonomy. Student and faculty member access to course material and course develop efforts by instructional designers will introduce another modality of instruction. Based on the results of this study development of faculty and student proficiency with mobile devices will soon be necessary.

Finally, it is important faculty be provided training on a continuing basis. Brown, Benson, and Uhde (2004) suggest that university workshops be implemented to assist faculty with learning new technologies that will allow them to develop their abilities in the area of technology in the classroom. They also suggest that being provided the time to participate in such training is crucial to achieving the goal of implementing a blended learning program.

### **Suggestions for Future Research**

Future quantitative research in this area should consider additional demographic factors such as gender, socio-economic status, and ethnicity. Including these factors in future studies will expand the scope of the researcher's understanding of student and faculty perceptions of blended learning and the associated tools in greater depth. With the growth of massive online universities and extension programs such as Adult Degree Completion (ADCAP) programs, a need exists for more longitudinal study in this area. Understand the learning preferences of a more diverse group of learners entering higher education institutions will require study over a period to determine the value of blended learning. Expanding the study to other private and public institutions will assist faculty and course designers nationally to better understand how to meet the needs of a diverse and growing population of learners who are highly mobile.

### **Conclusions**

Blended learning represents a shift in the profession of instruction that requires time for implementation. The need to embrace blended learning now requires investment in the tools, training and support, needed by faculty to facilitate blended learning environment that is more diverse and highly supported by technology (Hofmann, 2006). The objective of this quantitative survey research study with qualitative support sought to explore student and faculty perceptions of blended learning by addressing questions of use, frequency, readiness, and satisfaction with blended learning experiences. This research adds to existing scholarly literature in the field of blended learning by jointly exploring student and faculty perceptions and provided descriptive analysis.

Generally, students and faculty have similar views about the support provided for the web-based technologies used in blended learning courses. However, perceptions of the



proficiency of faculty members in the study differed between students and faculty. In order to sustain teacher presence in a blended learning environment that supports the social and cognitive needs of a diverse population of students, training faculty members is very important because a particular skill set is needed when it comes to technologies used in the classroom. The results of this study suggest that more training can be offered to faculty and students by technology support staff to increase their proficiency with web-based learning tools used in the classroom.

This research deviates somewhat from other studies whose focus was either directly on student perceptions or on faculty perceptions of the blended learning experience. By comparing student and faculty perceptions at a single location, this study sought to add to the literature in this area by offering an alternative, comparative view of how faculty and students perceive each other in the blended learning environment. Once these perceptions are out and openly discussed, an opportunity for administrators, faculty and students to engage more productively in the blended environment can be achieved. It is not enough to understand blended learning from the instruction or student side. Comparing perceptions of all members within the learning community is necessary to ensure the benefits of a blended environment can be experienced by all.

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## Appendices

Appendix A  
Institutional Review Board Approval



9/16/2015

Ronald Washington  
2424 Hemingway Trail  
Schertz, Texas 78154

Dear Ronald:

Your request to conduct the study titled *Enabling Change: Faculty and Student Perceptions of Blended Learning* was approved by exempt review on 9/16/2015. Your IRB approval number is 15-09-004. Any written communication with potential or current subjects must be approved and include the IRB approval number. Electronic surveys or electronic consent forms, or other material delivered electronically to subjects must have the IRB approval number inserted into the survey or documents before they are used.

Please keep in mind these additional IRB requirements:

- This approval is for one year from the date of the IRB approval.
- Request for continuing review must be completed for projects extending past one year. Use the **IRB Continuation/Completion form**.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **Protocol Revision and Amendment form**.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol.

Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research Development.

Sincerely,

A handwritten signature in blue ink that reads "Rebecca Penaloza".

Rebecca Penaloza, MAA, CRA  
Research Officer  
University of the Incarnate Word IRB

## Appendix B

## Faculty Survey Instrument

1. Which of the following learning technology tools are used when conducting courses you presently teach?

Method		Yes	No	Weekly	Monthly	Less than Monthly
1. Facebook						
2. Google + Hangouts						
3. Blackboard Collaborative						
4. Blackboard Wikispaces						
5. Online Quizzes						
6. Blogs						
7. Blackboard Discussion						
8. Twitter						
9. Cloud-based Storage (Dropbox)						
10. Web-based Collaborative tools (Google Docs)						
11. Other please specify						

2. How are you using these learning technologies in the courses you instruct?

3. How would you rate your proficiency with the web-based learning technology used in courses you teach?

1. Somewhat Proficient      2. Proficient      3. Moderately Proficient  
 4. Skilled      5. Highly Skilled

4. How would you rate the proficiency of your students in courses where web-based technology is used?

1. Somewhat Proficient      2. Proficient      3. Moderately Proficient  
4. Skilled      5. Highly Skilled

5. How would you rate your satisfaction with the technical support for the learning technologies used in conducting courses?

1. Extremely Satisfied      2. Somewhat Satisfied      3. Satisfied  
4. Somewhat Dissatisfied      5. Extremely dissatisfied

Please explain your response:

6. What factors do you believe contribute the most to student satisfaction with learning technologies used at your institution?

7. How would you rate the overall satisfaction of students with the learning technologies used in course instruct?

1. Very Satisfied      2. Somewhat Satisfied      3. Satisfied  
4. Somewhat dissatisfied      5. Very dissatisfied

8. How useful would you say web-based learning technologies are as a learning tool in the courses you instruct?

1. Somewhat Useful      2. Moderately Useful      3. Useful  
4. Mostly Useful      5. Highly Useful

9. What is your current age?

1. 28 or Less      2. 29 – 34      3. 35 – 40      4. 41 – 46      5. 47 or over

10. At what level of classification are you primarily instructing at this institution?

1. Undergraduate      2. Masters      3. Doctorate

11. What is your highest degree obtained?

1. Bachelors   2. Masters   3. Doctorate

12. In what academic college do you primarily instruct?

- |  |                           |
|--|---------------------------|
| 1. College of Humanities, Arts, & Social Science | 6. Education Department   |
| 2. School of Pharmacy                            | 7. Scholl of Media Design |
| 3. Math, Science & Engineering                   | 8. Physical Therapy       |
| 4. School of Business Administration             | 9. Nursing                |
| 5. Research & Graduate Studies                   | 10. Other                 |

13. How many years' experience do you have as a higher education instructor?

1. 5 or less                      2. 6 – 11                      3. 12 – 17                      4. 18 or more

14. Do you presently provide a blended learning form of instruction?

1. Yes                      2. No

## Appendix C

## Student Survey Instrument

1. Are any of the following technologies presently being used in courses you have taken at the university you are presently attending?

Method	Yes	No	Weekly	Monthly	Less than Monthly
1. Facebook					
2. Google + Hangouts					
3. Blackboard Collaborative					
4. Blackboard Wikispaces					
5. Online Quizzes					
6. Blogs					
7. Blackboard Discussion					
8. Twitter					
9. Cloud-based Storage (Dropbox)					
10. Web-based Collaborative tools (Google Docs)					
11. Other: Please Specify					

2. In what ways are your faculty using learning technology to engage you in courses?

3. How would you rate your proficiency with the web-based learning technology used in courses you have taken?

1. Somewhat Proficient      2. Proficient      3. Moderately Proficient  
 4. Skilled      5. Highly Skilled

4. How would you rate the proficiency of your faculty in courses where web-based technology is used?

1. Somewhat Proficient      2. Proficient      3. Moderately Proficient

4. Skilled 5. Highly Skilled 5. How would you rate your satisfaction with the technical support for the learning technologies used in courses you have taken?

1. Extremely Satisfied 2. Somewhat Satisfied 3. Satisfied  
4. Somewhat Dissatisfied 5. Extremely dissatisfied

Please explain your response:

6. What other factors do you believe contribute most to your satisfaction with learning technologies used in courses you have taken?

7. How would you rate the overall satisfaction of faculty with learning technologies used in courses you have taken?

1. Very Satisfied 2. Somewhat Satisfied 3. Satisfied  
4. Somewhat dissatisfied 5. Very dissatisfied

8. How would you rate the overall satisfaction of faculty with the learning technologies used in course instruct?

1. Very Satisfied 2. Somewhat Satisfied 3. Satisfied  
4. Somewhat dissatisfied 5. Very dissatisfied

9. How useful would you say web-based learning technologies are as a learning tool in the courses you attend?

1. Somewhat Useful 2. Moderately Useful 3. Useful  
4. Mostly Useful 5. Highly Useful

10. What is your current age?

1. 23 or less 2. 24 – 29 3. 30 – 35 4. 36 – 41 5. 42 – 47 6. 48 or older

11. At what academic level of classification are you presently studying?

1. Undergraduate 2. Master 3. Doctorate

12. In what academic department are you presently enrolled in?

- |  |                           |
|--|---------------------------|
| 1. College of Humanities, Arts, & Social Science | 6. Education Department   |
| 2. School of Pharmacy                            | 7. Scholl of Media Design |
| 3. Math, Science & Engineering                   | 8. Physical Therapy       |
| 4. School of Business Administration             | 9. Nursing                |
| 5. Research & Graduate Studies                   | 10. Other: Please Specify |

13. Do you presently attend a blended learning courses?

1. Yes 2. No