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Motivating Higher Education Faculty for Technology Integration: A Private College's Approach

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Abstract

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MS, Pace University, 1993

BBA, Pace University, 1991

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Some faculty in higher education are not embracing technology in their face-to-face classes. The purpose of this qualitative case study was to identify and describe faculty members' techniques for improving the technological integration within the curriculum at an urban college. This study investigated the incorporation of professional development activities within the college structure to determine if these mandated requirements resulted in enhanced technology use. Interview and observation data on technology integration practices were collected from 15 faculty members who taught within 5 departments of an urban college for 5 or more years. A combination of open and axial topic and descriptive coding was used to support inferential analysis. Observations revealed faculty were limited in their use of engaging and infused technology. Faculty wanted to use more technology of various kinds to support more active learning activities for students; they were concerned about their lack of skills and limited time for training. They appreciated the professional development offered and learned from the facilitator and from their peers; they became more aware of different technologies available. Needs identified included more release time for training, more differentiated training, and smaller groups when training. This study contributes to positive social change as it adds to the body of knowledge of faculty perception of technology integration into the curriculum. It also provides an analysis of the requirements for professional development training for successful technology integration at the college level. As technology continues to change, society demands that the educational arena produces students who will be active participants in this technological era. Faculty need to become more comfortable and proficient in technology use to enhance student learning.

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Dedication

I dedicate this dissertation to my family for their continued love and support throughout this process. Thank you for believing that I could do exceedingly abundantly above all I could ever ask or think (Ephesians 3:20). To my mother Monica, thank you for being an example of a strong and dedicated woman. Thank you for never giving up and for your continued encouragement. To my sister Deidra, you have proven that success lies within. I am so proud of the woman you have become, always remember, greater is still ahead! To my pastor and mentor, Dr. Eloise L. Young, your words of prayer strengthened me when I wanted to give up. Thank you for pushing me beyond what I could ever imagine. To God be the Glory, for the Things He has Done!

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Trust in the Lord with all your heart, and lean not to your own understanding; In all your ways acknowledge Him, and He shall direct your paths. (Proverbs 3:5-6)

I give thanks to my mentor and dissertation chairperson, Dr. Linda Crawford, who proficiently guided me throughout this journey. Thank you for stepping in with your expertise to ensure that I would successfully complete this voyage. To my committee member, Dr. Carol Watson, thank you for your attention for detail and for believing in this study. Your words encouraged me more than you would ever know. To my university research reviewer, Dr. Christina Dawson, thank you for your thorough and helpful evaluation of this body of work. Finally, I give special thanks to Dr. MaryFriend Shepard who never gave up on seeing me through to the end.

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Chapter 1: Introduction

Motivation of higher education faculty members towards the integration of technology into instruction was the focus of this study. While research has concentrated on K-12 education with the implementation of the No Child Left Behind Act as well as the National Educational Technology Standards for Teachers (NETS-T), there is a gap in the research for technology integration at the higher education level. Integration cannot merely mean the possession of technological tools, but the knowledge and ability to apply those tools in effective ways. The necessary support infrastructure may be available but it is of no value if the faculty members are not prepared or motivated to effectively use the technology.

The research problem was identified as ascertaining the techniques for successful technology integration. Questions were developed to further specify the problem and purpose of the study. The theoretical frameworks of diffusion of innovation theory, activity theory, and the technology integration model were used as guides in this study. The nature of the study, all pertinent definitions, assumptions, scope, and limitations were also identified. Finally, this chapter discusses the significance of the study and its contribution to positive social change.

Background of the Study

Technology integration is the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools (National Forum on Education Statistics [NFES], 2005). For many years technology integration consisted mainly of using a computer to type a paper or surf the Internet, or to

create and display PowerPoint slides. However, true technology integration must be "routine, seamless, efficient and effective in supporting the school's goals and missions" (NFES, Chapter 7, para. 1).

Researchers have found that teacher training programs do not prepare teachers with the technology they need in the classrooms, and the United States will need a projected 2.2 million teachers over the next decade (Milken Exchange on Educational Technology, 1999). It is therefore recommended that schools revamp the curriculum to include the necessary professional development activities or training incentives that will propel faculty into integrating technology into the curriculum.

Educational reform can be seen as far back as Horace Mann's Educational and National Welfare Report of 1848 (Calhoun, 1969). Mann believed that all teachers should want to teach and must be trained to teach. Teaching, according to Mann, is the "most difficult of all arts and the profoundest of all sciences" (p. 186). This belief is now seen in the 21st century, as teachers must be familiar with various techniques, methods, and styles of integrating technology into the curriculum.

The integration of technology into the curriculum has become the focal point of many studies as the educational system continues to embrace technology. The push for technology integration into America's classrooms facilitated by the No Child Left Behind Act (Title II, Part D) has created numerous societal changes. The modern proliferation of technology has changed the environment to such an extent that the next generation will need a new, more challenging skill set (U.S. Department of Education, 2004). Technology integration should be used not just to improve access, but to enhance teacher

productivity and student learning (Hernandez-Ramos, 2005). This can be accomplished through formalized professional development trainings and administrative support. Competitive universities must integrate technology into the classroom by developing programs based on learning and providing appropriate levels of technical support (Rogers, 2000). In essence, teacher trainings for technology integrations must be organized. The faculty must feel a part of the process and must be able to identify the benefits both to the student and to themselves. Small steps can be taken, similar to those documented by Schreyer-Bennethum and Albright (2011) where additional workshops and biweekly brainstorm meetings were provided to the faculty. This resulted in creative ways of incorporating technology in the classes and thus increased the passing rates of the students.

The lack of effective usage of instructional technology is also creating a barrier between the faculty and their students, as many students entering college are expected to be proficient in utilizing technology while many faculty members are not. Rogers (2003) argued that an individual will never accept an innovation until they understand how it functions. The problem of not integrating technology into the curriculum can be seen through the lack of trust for the innovation, as faculty often cling to the existing processes and revert to old habits (London & Draper, 2008). They further suggested that additional factors contributing to this problem are a resistance to change, the necessary levels of adoption, the level of technology usage by the faculty, incentive or the lack thereof to use the technology, and the skills and knowledge necessary for successful integration.

Most K-12 schools require students to become proficient with technology usage and require teachers to be proficient in integrating technology into the curriculum (Summerville & Reid-Griffin, 2008). However, that proficiency is not required of the faculty in higher education. While many campus classrooms are equipped with the best hardware and software, college-level instructors' use of technology integration and their attitude towards teaching technologies needs to be improved (Brill & Galloway, 2007) .

Many faculty members are still unsure how to use a computer; therefore, the push to integrate technology is often met with fear and uncertainty. Higher education faculty must be technologically savvy and though the innovation exists, the adoption within many colleges and universities has not been as widespread as was predicted (Brown, Benson, & Uhde, 2004). Faculty must understand the relationship that technology plays within the classroom in order to use it effectively (D'Angelo & Woosley, 2007). Many faculty members question technology integration whether actually improves a student's ability to learn. The authors further noted that in order to correct this, problem instructors must make the usage of technology clear to the students so they too may embrace its usage.

Mills and Tincher (2003) documented a study of evaluating technology integration conducted within a school district where technology was used for more than teaching. Some of the additional means integrated included the technology integration standards configuration matrix (TISCM), new technology standards, best practices, and ongoing professional development training. Not using the technology often occurs because the faculty do not see the need for technology integration or are uncomfortable

with its usage and implementation (Chen, Looi, & Chen, 2009). This reflects the need for strategic intervention that will both motivate faculty and improve practical competencies in its usage. The authors further proposed that support for this integration should come from either fellow faculty or researchers in order to leverage the technology successfully.

The motivational techniques that may or may not increase technology integration at the higher education level are not determined as yet. These researchers have focused on K-12 teacher training (Bain & McNaught, 2006; Brill & Galloway, 2007; Chen, Looi & Chen, 2009; Hicks, 2011; Liu & Huang, 2005; Xiaoquing, Yuankun, & Xiaofeng, 2013), however only a few studies have been conducted at the higher education level (Baia, 2009; Brown, Benson & Uhde, 2004; Del Favero, 2007; Garza Mitchell, 2011). While there may be a push on the K-12 level with the No Child Left Behind Act and the national education technology standards, there is no such mandate at the higher education level. There is little research about technology integration in higher education, more specifically, how to motivate the faculty in incorporating technology into the curriculum. Therefore this research explored the motivational factors for integrating technology into higher education curriculum.

Problem Statement

The problem addressed by this study was identifying techniques necessary for successful technology integration into the higher education curriculum. These techniques are imperative to the 21st century learner as society now demands students who are well versed and active participants in the technological era. This study addressed the problem

by investigating the technology integration methods used by the faculty of a private college in an urban community.

Purpose Statement

The purpose of this qualitative case study was to identify and describe motivational techniques necessary for improving the technological integration within the curriculum of 15 faculty members at ABC College.

Research Questions

The overarching research question of this case study was: What constitutes the successful technology integration into the curriculum of the ABC College?

Subquestions to the overarching question were:

1. What motivates higher education faculty to use technology in their classroom?
2. What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?
3. What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?
4. How can colleges improve the professional development that is provided to faculty in the area of technology integration?

Conceptual Framework

The theories incorporated into the framework for this study were the diffusion of innovation theory, activity theory, and the technology integration model. The diffusion of innovation theory was used to determine the process by which the college

communicates the adoption of technology integration to the faculty. It was then contrasted with Vygotsky's activity theory to determine how the faculty interacted with the technology and when adoption actually took place. Finally Johnson and Liu's (2000) technology integration model (Figure 1) was incorporated as it provided a more distinct picture of the true level of technology integration.

Diffusion of innovation theory is the study of how, why, and at what rate a new idea or technology spreads through a particular system. Diffusion of innovation theory notes that the attitude towards technology will become a key element in its diffusion. The perception of newness of the idea for the individual will determine how they will react to the idea. Rogers (2003) further theorized that when new technological innovations are encountered, an uncertainty occurs in the mind of the potential adopter. This process is referred to by Rogers as the innovation-decision process.

Teacher and technology innovations should be broken into phases as traditional teacher trainings are often focused on the elimination of first order barriers such as acquiring technical skills needed to operate a computer (Ertmer, 1999). These first order barriers must first be addressed before faculty members are expected to perform at the necessary level for proper technology integration.

Modern technologies offer opportunities for higher education faculty to enhance their curriculum, but acceptance of such technology is not always well received. Brill and Galloway (2006) found that while computers may be used by faculty, the way in which they are used may not be deemed as technology integration. Most instructors in this study felt that technology had a positive influence on their teaching and on student

learning especially in creating an active learning environment. This theory was vital to this study, as the mandate of this private college to incorporate technology into the curriculum required that faculty members comply.

In contrast, Vygotsky's activity theory posits that when individuals interact with their environment, the result is a great production of tools. This theory has become an "increasingly popular theoretical perspective in the field of human-computer interaction" (Scanlon & Issroff, 2005, p. 432). The research further documents that increased usage of technology leads to favorable outcome in technology integration by the students. Activity theory therefore assisted in determining how these outcomes were influenced by the varied learning events.

The incorporation of activity theory coupled with faculty assistance through technology integration assists students acquiring knowledge (Mooney, 2000). Vygotsky referred to this assistance as *scaffolding*, or being able to achieve a new level of learning which could not otherwise be reached without assistance. The idea of teachers working as facilitators in the educational environment incorporates this concept. Teachers must be able to determine when a student needs additional assistance to bring them to the next level. The curriculum must therefore include group activities where students can learn from each other as well as build upon prior learned principles.

The 3-D information technology integration model (see Figure 1) addresses how to obtain successful technology integration by making software choices that promote enhanced learning as well as problem-based arguments and constructive learning environments. The weaknesses however as argued by are based on the following: (a)

technology added into the lesson or curriculum, but not integrated, and (b) exploring how to use a particular technology linked to a learning objective (Johnson & Liu, 2000).

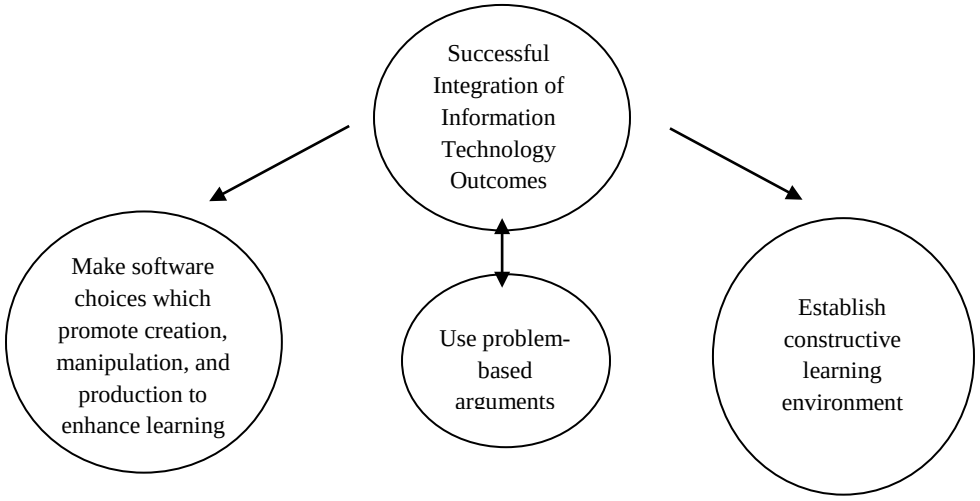

Figure 1. Successful technology integration.

Note. From "First steps toward a statistically generated information technology integration model," by Johnson, D. L. & Liu, L., 2000, *Computers in the Schools*, 16(*2*), 3-12. Adapted with permission.

Nature of the Study

This case study was designed to evaluate the teaching practices, professional development activities, and technology integration techniques of 15 faculty members who have been with ABC College, located in an urban community, for 5 years or more. This qualitative study used observations and interviews of the 15 faculty members.

A purposeful sampling technique was used to select the faculty for this study. Participation was based on two criteria: (a) faculty must have taught in higher education for 5 years or more, and (b) faculty member must have taught in one of the following

departments: English/social sciences, mathematics, criminal justice, business/accounting, or health.

Data were collected through observations (Appendix F) and interviews (Appendix E). I observed the faculty members over a 2-month period as they conducted their classes in order to gain a firsthand experience on how the technology was being used.

All observations and interviews took place over a 2-month period. Interviews were recorded, transcribed, and then analyzed using NVivo. Themes generated from the analysis were then compared to Moersch's (1995) levels of technology improvement (LoTi) chart (Appendix C) to determine into which of the seven categories faculty member fit: (a) nonuse, (b) awareness, (c) exploration, (d) infusion, (e) integration, (f) expansion, and (g) refinement.

Definitions

Accessibility is the degree to which the necessary tools are available to the faculty in order to integrate technology.

Active learning is the ability for students to use inquiry and exploration within classroom activities. The students then become direct stakeholders in their learning process (Jonassen, Peck, and Wilson, 1999).

Assessment is the process of collecting information about how faculty use technology and its effectiveness within the classroom. It then allows the faculty to refine teaching practices and grow as efficient educators.

Diffusion refers to the process of communicating an innovation over a period of time to various members of group or social system (Rogers, 2003).

Innovation is the idea, practice, or object which an individual deems as new. The newness of the idea thus triggers the individual to form a reaction of adoption or rejection (Rogers, 2003).

Technology integration is the ability for the faculty to use various technology tools into the day-to-day curriculum thus creating an active learning environment (Roblyer, 2003).

Assumptions

The following assumption was made for this study: Faculty members were provided with the necessary classroom facilities for technology integration.

Scope, Delimitations, Limitations

The scope of this study was a four-year private college located in an urban community. The faculty members in this study were selected through their years of teaching in higher education and in the departments in which they taught. The 15 faculty members participated in observations and interviews as qualitative data were collected.

The delimitation of this study was the focus of only 15 participants from five departments: English/social sciences, mathematics, criminal justice, business/accounting, and health within the college. Time and available resources would not allow more participants. Departmental resources and the availability of faculty during any given semester was also a factor. The limitations to this study were that the qualitative data gathered may have been hampered by the participants or time period in which the study took place. The college chosen for this study operates on a three semester schedule, where classes are held during the fall, winter, and spring/summer. Another limitation was

that the selected faculty members may have changed their classroom practices at the time of the observations so as to reflect a positive light, and then reverted back to previous practices after the observations were complete. Finally, the faculty's perceptions, attitudes and experiences may have changed over time and resulted in varied opinions and participation. This study involved a purposive sample of the participants and was not representative of a larger population. Therefore, the findings of the study cannot be generalized to all private colleges.

Significance of the Study

The significance of this study is that it contributes to the body of knowledge about a faculty's perception of technology integration into the curriculum. It also provided greater insight into the development of professional development training for technology integration at the college level.

This information aids administrators and instructional technology staff when supporting and assisting faculty in incorporating technology in instruction. It also informed faculty on steps in identifying their own commitments to education and how those commitments are related to their acceptance of technology integration. Teachers may be apprehensive while seeking change; however, they will resist being forced to change (Senge, 1990). The goal of this research was therefore to understand what engages faculty to improve their own teaching with technology and therefore enhance the learning environment for their students.

Contribution to Social Change

This study contributes to positive social change, as it adds to the body of knowledge for effective technology integration on the college level. As technology continues to evolve, society demands that the educational arena produce students who will be active participants in this technological revolution. In order to prepare students who are deemed information literate, higher education faculty must also be ready to integrate technology into their curricula. Many schools are now providing the necessary computer equipment; however, faculty acceptance and participation is still lacking. Schools are therefore looking for new ways to revamp their professional development and teacher education activities as new ways are developed to direct faculty how to effectively use technology in their classes.

Summary

Technology integration has become paramount to the future success of students. Faculty members are realizing more frequently that integration cannot be used simply in a passive fashion where drill and practice drives the curriculum but as a means for the student to become an active participant in his/her education.

This study further explored how faculty who have successfully integrated technology into their curriculum drive the constructive learning environment within their classes. A best practices model was then shared with the ABC College for implementation in future professional development training sessions.

The literature review provided in chapter 2 further explores and examines various strategies for technology integration. Literature specific to topics such as integration, technology diffusion, technology in the classroom, and active theory were evaluated.

Chapter 2: Literature Review

The purpose of this qualitative case study was to identify and describe motivational techniques necessary for improving the technological integration for 15 faculty members within the curriculum at ABC College. The teaching practices and technology integration techniques were explored to determine if they go beyond using technology simply as a first order barrier tool. The utilization of a technology integration model, TISCM was used to determine best practices as well as to possibly revamp the professional development trainings.

The databases searched in this literature review were Academic Search Premier, Ebsco Host, Sage, and ProQuest. Included in this search were keywords such as *technology integration, higher education, technology diffusion, instructional technology,* and *curriculum integration*.

This literature review began with an exploration of technology diffusion and the impact it plays on the faculty, students, and the organization. It then investigated various technology integration and administrative support techniques on the higher education level. Finally, an assessment of faculty development models was conducted.

Framework

The framework for this study was that of diffusion developed by Rogers (2003) and Vygotsky (1934), in conjunction with the technology integration model of Johnson and Liu (2000). Diffusion theory states that individuals do not evaluate an innovation based on scientific studies, but based on a subjective evaluation from other individuals

who have already adopted the innovation. To clearly explain this theory, an investigation of Rogers's (2003) four main elements of the diffusion process is necessary.

1. Innovation: An idea or practice which is deemed new by either an individual or a group. It is the perceived "newness" of the idea from the individual/groups' perspective which determine whether or not they will actually adopt the innovation. The individual will first determine how this innovation benefits them before they will even consider adoption. Perceived advantages and disadvantages must first be determined.
2. Communication channels: The means by which the message content is exchanged between members involved with the innovation. It is the relationship between the individuals that will determine not only how the information is passed but also the manner/effectiveness in which it is passed. Homophilous relationships in this case would be ideal for the communication channel these individuals share common interests, education, and or beliefs. Heterophious in contrast is the degree in which the individuals are different in education level and socioeconomic status, and thus often causes the diffusion to take place which in turn produces ineffective communication.
3. Time: This occurrence within the diffusion process is measured by how long it takes the individual from when the first learnt of the innovation to the time when it is either adopted or rejected. This measurement of time can also focus on how long and individual or group uses this adoption as compared

to other members of the same unit, or the rate of adoption within a given time period.

4. Social system: A group or interrelated units engaged in problem solving to accomplish a particular task or goal. Within this social system you may have change agents or very opinionated individuals who can affect the decision or adoption process.

Technology Diffusion

Teclehaimanot and Mentzar (2003) documented the absence of technology rich teaching strategies in education; although an enormous amount of money and resources have been devoted to technology enhancement in our educational system. Teacher's usage of technology for instruction purposes will be influenced by their beliefs about teaching and learning (Teo, Chai, Hung, & Lee, 2008). While there have been professional development programs aimed at technology infusion into the curriculum, over the past decade, teachers in teacher education programs still are not prepared for the technology integration (Wang & Patterson, 2005). The 2010 U.S. Department of Education technology plan demonstrates this new paradigm as it recommended the creation of a robust technology integration programs into all K–16 schools. This plan supports the design, implementation, and evaluation of technology generated programs in order to enhance the 21st century skills of the students (Pilgram, Bledsoe, & Reily, 2012). While teachers may have some training in technology implementation, once the training ends, only about 50% believed that they were truly prepared to integrate technology. Faculty assumptions seem to have a great value in how and when the diffusion will

actually take place. Veteran faculty who do not see technology as a part of their teaching responsibilities may be more apt to resist this change (Plair, 2008). Self-interest is said to also play a vital part as faculty want to know what will be gained if this innovation is adopted. It is not enough to give the faculty all the necessary technology if they cannot see where it will benefit them. "Core values that truly reflect a faculty's belief system will chart the route for change initiatives and help guard against the mentality to pursue a quick fix to problems and then fail into the cycle of chasing event-driven changes" (p. 74). During an investigation of the faculty's self-assessment of integrating technology, it was documented by the researcher that the faculty were resistant to changing their underlying beliefs on how these technologies would enhance or improve their teaching process (Swain, 2006).

Peer or team teaching also plays a greater influence as faculty can actually see how another colleague uses or benefits from the innovation. The gradual movement of technology integration coupled with support, such as mentoring, produces a better chance of prolonged integration (Kopcha, 2010). Wand and Patterson (2005) therefore conclude that the only way to have successful technology diffusion is to first understand and address the faculty's self-interests while at the same time accomplishing the goal of the organization. A two-step process to construct IT change initiatives was proposed by Wang and Patterson (2005): (a) describe your value, your passion relative to the proposed change initiative, and then (b) build on the value statement by stating what you will do to make the value come to fruition. Faculty may be sincere about technology diffusion; however they are also quite scared about making the necessary commitment. Xiaoqing,

Yuankun, and Xiaofeng (2013) document six categories of technology integration barriers. Two, which specifically relate to teachers behaviors, are the lack of specific knowledge and skills about technology, and the attitude and belief towards using this technology. An association was further constructed as the teachers' attitudes and beliefs were said to be affected by their knowledge and skills. Faculty development therefore remains crucial in technology diffusion. The main question that an individual typically ask about a new idea include "What is the innovation?" "How does it work?" "Why does it work?" "What are the innovation's consequences?" and "What will its advantages and disadvantages be in my situation?" (Rogers, 2003, p. 14)

These questions will become key elements in the diffusion of technology, as individuals due to their own self-interest will first determine how this technology integration change will affect them before they determine how they will react to the idea. This uncertainty as noted by Rogers (2003) occurs in the mind of the potential adopter thus influencing the innovation-decision process. It however can be alleviated through proper training. Senge (1990) in contrast, refers to this uncertainty as being associated with a particular position, where an individual may decide that this change does not benefit them in their current position therefore not taking into consideration the greater good of the organization, or in this case the students. Fuller (2000) concluded that teachers refuse to integrate technology because they feel threatened. Other scholars have stated that the only way to successfully have technology diffusion is to first understand the faculty's self-interest (Wang & Patterson, 2005). This compromise could either take priority over the organization's interest or strengthen it as both parties work to achieve

the same goal. Pedagogy, technology, and organization must therefore be aligned in order to diffuse the technology (Jochems, Van Merrienboer, & Koper, 2004). These three solidify the idea that while diffusion is a social process, it takes place within a system, which in itself must be conducive to the diffusion while providing the necessary technology and support.

Those institutions that experienced very rapid diffusion invariably had e-learning represented as a strategic, top managerial level, or had mandated professional development which included e-learning. Lack of top level support was addressed by one participant who indicated that a clear vision and strategy for (e-learning) was necessary and must be supported by the institution. Without the support of the institution, faculty will continue to argue and debate as to whether the integration is necessary and should occur (Nichols, 2008).

It is the alignment of the professional development, the technology the individual will be using, and the institution's goals which will be the driving force to successful diffusion. The expectations and buy-in from the administration will also influence the faculty training and professional development activities. Al-Bataineh, Anderson, Toledo, and Wellinski (2008) believed that the most frequent obstacle in not using technology is simply a lack of familiarity with the technology. Hicks (2011) noted inadequacy, intimidation, and insecurity as multiple reasons why teachers continue to resist technology. The fear is that they will not be able to effectively use the technology and thus look unskilled before their tech-savvy students. The confidence a teacher possesses

towards technology will indeed influence his/her usage of the technology and will determine their integration level.

Another framework, which may aid in the assessment of faculty attitude within technology diffusion, is stages of concern (SoC). The advantage of the SoC is its measurement over time of the various concerns, attitudes, and feelings an individual may have developed towards a particular innovation. Stages of Concern as cited by Liu and Huang (2005) were developed by Hall, George, and Rutherford (1977) and consist of seven stages:

Stage 0: Awareness - What is it? I am not really concerned about it.

Stage 1: Informal - How does it work? I would like to know more about it

Stage 2: Personal - How will using this innovation affect/impact me? What role will I be asked to play?

Stage 3: Management - How can I fit it all in? How can I master this innovation? How much time is necessary to get the materials ready?

Stage 4: Consequence - How is my usage of this innovation affecting the students?

Stage 5: Collaboration – How can I relate what I am doing to what others are doing? What will be gained from doing this?

Stage 6: Refocusing – Is there a better way? I may have some ideas of how to do this differently?

Stages 0-2 are related to concerns about self (internal concerns), while stages 2-4 are related to concerns about management and stages 5-6 on the impact the innovation may

have on the students (external concerns). Hall et al. (1977) Stages of Concern (SoC) questionnaire assessed the concerns about an innovation and "defined concerns as the motivations, perceptions, attitudes, and feelings that teachers experience related to implementing an innovation" (p. 37). Furr, Ragsdale, and Horton (2005) believed that the transformation of technology integration must be properly enacted to achieve appropriate results. Dawson and Dana (2007) addressed the question of engagement in teacher inquiry and its ability to promote conceptual change related to teaching with technology. The researchers found that while teacher inquiry is not all about conceptual change; it is a possible outcome if coupled with a change in the technology integration belief system of the teachers. Yu and Smith (2008) identifies obstacles such as limited availability of equipment, lack of training, the expectation of the faculty, lack of funds, and lack of time for the faculty to acquire the knowledge of technology. The evidence is clear that many faculty are however still afraid to use technology within the classroom and research has indicated that more studies must be conducted to determine how to best integrate technology into the curriculum.

Technology Integration and Administrative Support

Few studies have focused on technology integration in higher education, while many have occurred on the K-12 level. The higher education versus K-12 technology integration was however documented by Weston (2005) who noted that the main uses of technology integration regardless of the educational level tends to be a substitution of a new innovation for something that is currently being done. Miller, Martineau, and Clark (2000) also believed that there is a lack of incentives within the higher education arena

when it comes to changing the instruction. This lack of incentives may be the root cause why faculty uses substitution without actually making any substantial changes. Weston (2005) further indicated that in motivating the instructors to incorporate the technology, they must in essence see an added benefit from its incorporation; the benefits must outweigh the drawbacks. The structural constraint of their workplace also contributes to the technology integration, as the faculty must feel that they have the support of their administration. The number of faculty members who can successfully incorporate technology to enhance student learning is still fairly low, and those who are interested may not have access to the training or equipment that would allow them to do so (Garza Mitchell, 2011). As inevitable as technology integration may be, educators still question the viability of the improvement of learning (Baytak & Akbiyik, 2010). Professional development workshops or training session should be available. Assistance should be readily available to assist the faculty if they run into problems with the technology. The faculty must feel that as they are attempting to integrate this new technology, they will also have the necessary resources and equipment available.

Integration, according to Weston (2005), requires that the faculty move from initial adoption and one-time demonstrations to making technology a part of instruction. The integration mandate must be spearheaded from the administrator level, as a strategic plan must be implemented in order for true technology implementation to take place. Despite the tremendous availability of technological tools, Wright and Wilson (2007) observed that there is still a need for demonstration of these teaching and learning tools in the classroom. Occasional uses of technology will keep the faculty at the initial adoption

phase and thus prevent them from moving to full technology implementation. In the study conducted by Palak and Wall (2009), an investigation was held on the belief and practices of teachers who worked at technology-rich schools. The results indicated that while the teachers had access to the technological tools, their beliefs towards a student-centered paradigm did not change. The study documents that the only teacher who had a positive outcome was one who was well versed in technology and had prior experience in its integration. While many schools have the technology infrastructure, they do not provide the necessary administrative support that emphasizes teaching and learning in a technological society (Weston, 2005). Neal (1998) as noted by Rogers (2000) believed that many faculty members are slow in the adoption of technology because they are not convinced that using it will improve their student's learning. They are also looking to see improvement from the administration specifically in lower teaching loads and class sizes as well as access to resources such as a computer on their desk or readily available technicians. Rewards and recognition such as monetary compensation or promotion are also welcomed.

In a study by ChanLin (2005), the results indicated that social impact was the greatest concern for faculty towards technology integration. Social impact in this case consisted of technical support from peers or coworkers; the attitude of supervisors or administrators towards training and the teacher's ability to overcome technical problems; student learning achievement, as well as the social value and support they will receive from parents and the community in general. Sugar, Crawley, and Fine (2004) documents

that a teacher's belief as to the importance of using technology plays a major role in whether or not they will adopt new technology.

Faculty Development Models

One of the key factors for effecting an integration of computers in the school curriculum is adequate training of teachers in handling and managing these new tools in their daily practices. The instructor who has learned to integrate technology into existing curricula may teach differently than the instructor who has received no such training (Collis et al., 2010). Without the proper training faculty will continue to be leery of technology and thus the uncertainty of technology integration will continue to exist. This aversion occurs because they are unfamiliar and uncomfortable with the technology integration (Garza Mitchell, 2011). Studies have shown that while billions of dollars are funded each year for technology, only about 15% is allocated for teacher education (OTA, 1995). While this may seem to be the optimal solution, the research does not document what type of professional development or teacher training is necessary.

Studies have also shown that many teachers are still at the basic level of technology, usage such as word processing and Internet searches, and may not be prepared for the vast levels of technology integration into the curriculum such as collaboration, teaming, or using technology to assess and evaluate real-world issues as required by many schools (Liu & Huang, 2005). Liu and Huang (2005) further document a push by the Illinois State Board of Education to provide grants for teacher in-service and technology integration activities for all teachers.

Neo (2007) further supported that that learning can be improved with the incorporation of interactive multimedia modules. Parekh (2006) and Dawson (2008) also stated that utilizing interactive multimedia technologies tremendously reduced the tedium of passive learning. To further evaluate the needs of the faculty, researchers have been utilizing Moersch's (1995) Levels of Teaching Innovation model (LoTi) as an effective tool in assessing how faculty is actually using technology within the classroom. While originally developed to assist teachers in the K-12 arena, educators everywhere now validate the LoTi model as an effective tool in identifying the needs of faculty and in determining the respective professional development plans to fulfill these needs. Goals of LoTi include: improvement in professional development and teacher effectiveness within the classroom and the promotion of 21st century teaching and learning styles.

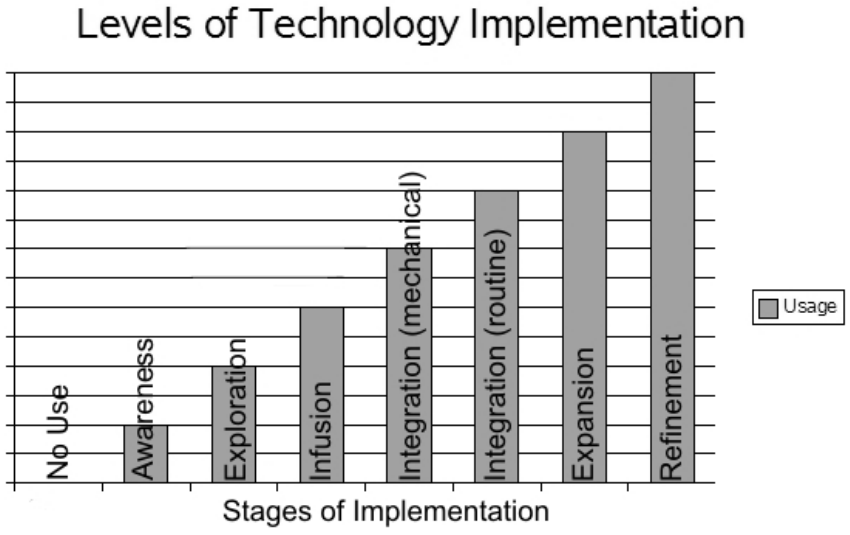

Figure 2: Levels of Technology Implementation

Note. Moersch's (1995) Levels of Teaching Innovation model (LoTi). Adapted with permission.

LoTi uses seven categories to evaluate faculty technology usage: (0) no use, (1) awareness, (2) exploration, (3) infusion, (4) integration – mechanical/routine, (5) expansion, and (6) refinement; focuses on instruction, assessment, and effective usage of the technology as higher order thinking skills are the goal for the 21st century student.

Table 1. *Levels of Teaching Innovation*

Level	Description of Technology Implementation
Level 0 – Non-use	There is no usage of technology tools and resources. The use of instructional materials is predominately text-based (student handouts, worksheets).
Level 1 – Awareness	Usages are primarily lectures and teacher-created multimedia presentations used to support the lecture/discussion. Both the faculty questions and student learning focuses on lower cognitive skill development (e.g., knowledge, comprehension). Digital tools and resources fall into the categories of curriculum management tasks (taking attendance, using grade book programs, accessing email, retrieving lesson plans or Internet usage), or used to enhance lectures or presentations (multimedia presentations). They may also be used by students unrelated to classroom activities (social network sites or games).
Level 2 – Exploration	Teacher questioning and/or student learning focuses on lower levels of student cognitive processing (such as knowledge and comprehension) using the available digital assets. Digital tools and resources are used by students for extension activities, enrichment exercises, or information gathering assignments that generally reinforce lower cognitive skill development relating to the content under investigation. Students may use multimedia products to present their content understanding in a digital format that may or may not reach beyond the classroom.
Level 3 – Infusion	Emphasizes student higher order thinking (application, analysis, synthesis, evaluation) and engaged learning. Digital tools and resources are used by students to carry out teacher-directed tasks that emphasize higher levels of student cognitive processing relating to the content under investigation.

(table continues)

Level 4a – Integration: Mechanical	Integration: Mechanical, students are engaged in exploring real-world issues and solving authentic problems using digital tools and resources; however, the teacher may experience classroom management (e.g., disciplinary problems, Internet delays) or school climate issues (lack of support from colleagues) that restrict full-scale integration. Heavy reliance is placed on prepackaged materials and/or outside resources (e.g., assistance from other colleagues), and/or interventions (e.g., professional development workshops) that aid the teacher in sustaining engaged student problem-solving. Emphasis is placed on applied learning and the constructivist; problem-based models of teaching that require higher levels of student cognitive processing and in-depth examination of the content. Student's use of digital tools and resources is inherent and motivated by the drive to answer student-generated questions that dictate the content, process, and products embedded in the learning experience.
Level 4b – Integration: Routine	Integration: Routine, students are exploring real-world issues and solving authentic problems using digital tools and resources. The teacher is within his/her comfort level with promoting an inquiry-based model of teaching that involves students applying their learning to the real world. Emphasis is placed on learner-centered strategies that promote personal goal setting and self-monitoring, student action, and issues resolution that require higher levels of student cognitive processing and in-depth examination of the content.
Level 5 – Expansion	Collaborations extending beyond the classroom are employed for authentic student problem-solving and issues resolution. Emphasis is placed on learner-centered strategies that promote personal goal setting and self-monitoring, student action, and collaborations with other diverse groups (e.g., another school, different cultures, business establishments, governmental agencies) using the available digital assets. Student's use of digital tools and resources is inherent and motivated by the drive to answer student-generated questions that dictate the content, process, and products embedded in the learning experience. The complexity and sophistication of the digital resources and collaboration tools used in the learning environment are now commensurate with (a) the diversity, inventiveness, and spontaneity of the teacher's experiential-based approach to teaching and learning and (b) the students' level of complex thinking (e.g., analysis, synthesis, evaluation) and in-depth understanding of the content experienced in the classroom.
Level 6 - Refinement	Collaborations extending beyond the classroom that promote authentic student problem-solving and issues resolution are the norm. The instructional curriculum is entirely learner-based. The content emerges based on the needs of the learner according to his/her interests, needs, and/or aspirations and is supported by unlimited access to the most current digital applications and

	infrastructure available. At this level, there is no longer a division between instruction and digital tools/resources in the learning environment. The pervasive use of and access to advanced digital tools and resources provides a seamless medium for information queries, creative problem-solving, student reflection, and/or product development. Students have ready access to and a complete understanding of a vast array of collaboration tools and related resources to accomplish any particular task.

Note. Moersch's (1995) Levels of Teaching Innovation model (LoTi). Adapted with permission.

The Loti Model has since become a LoTi Connection where schools across the country now use the Loti questionnaire to determine the level of technology usage and integration by their faculty. Numerous dissertations on the topic of technology integration as well as an assessment of validation study by Dr. Jill Stoltzfus (2006) have been conducted.

In contrast, the Technology Integration Impact Rubric below has been documented by researchers such as Brinkerhoff (2006) in determining the effects of long term professional development training on computer skills and technology integration beliefs and practices of various faculty. The anxieties of novice faculty to the perception of experienced teachers who are leery of the impact of technology were also evaluated.

Table 2. *Technology Integration/ Impact Rubric*

Level	Frequency of Use	Source of Direction	Nature of Integration	Purpose of Technology Uses
1 – Minimal Usage	Time to time. Not used every day	Instructor directed	Technology is used as add-ons to other learning activities.	Skill learning (games, calculator, and tutorials) and Efficiency tools (word processing, spreadsheets, presentation software etc.)

(table continues)

Level	Frequency of Use	Source of Direction	Nature of Integration	Purpose of Technology Uses
2 – Intermediate Usage	Used routinely, nearly every day.	Primarily instructor directed with some student initiation.	Technologies help structure some learning activities.	Same as level 1with the addition of software used to organize information, support problem-solving, and discover concepts. Use Internet search engines and electronic encyclopedias for research.
3 – High Usage	Used every day for some type of activity.	Both instructor and student directed.	Technology used to change the nature of some learning activities. Used seamlessly in many activities.	Same as levels 1 and 2 with the addition of technology tools used to organize and analyze data. Presentation and communication tools are used to communicate with those inside and outside of the college.
4 - Maximum Usage	Used as a routine part of many daily activities.	Primarily student directed with the instructor providing the necessary support as well as the introducing new technology resources	Technology used seamlessly with all activities. Both students and instructors rely on technology to assist in teaching and learning.	All uses of levels 1 – 3. Students also select other technologies appropriate for their assignments and/or learning activities.

Note. Roblyer, M.D. (2003). Integrating educational technology into teaching. 3rd edition. Upper Saddle River, NJ: Prentice Hall. Adapted with permission.

Summary

Hernandez-Ramos (2005) stated, "technology integration should be defined not simply as a question of access but rather as a tool both for improving educators' professional productivity and promoting student learning" (p. 453). The only way for effective integration is for formulized professional development trainings. Faculty and

administrators must be on the same agenda as to what is necessary for both the implementations and training of technology. Costly mistakes may be made if a needs assessment is not conducted. This assessment must include the needs and expectations of the students, faculty, staff, and administrators (Garza Mitchell, 2011).

In essence, teacher trainings for technology integrations must be organized. The faculty must feel a part of the process and must be able to identify the benefits both to the student and to themselves. "If people cannot see the benefit of learning how to use technology, they will not attend trainings" (p. 49). Small steps can be taken similar to those documented by Schreyer-Bennethum and Albright (2011) where additional workshops and bi-weekly brainstorm meetings were provided to the faculty. This resulted in creative ways of incorporating technology in the classes and thus increased the passing rates of the students.

Chapter 3: Research Method

The purpose of this qualitative case study was to identify and describe motivational techniques necessary for improving the technological integration within the curriculum of 15 faculty members at ABC College. While there may be a push on the K-12 level with the No Child Left Behind Act and the National Education Technology Standards, there is no such mandate at the higher education level. This qualitative case study concentrated on the technology integration practices of the faculty of a private college in a northeastern state in the United States. It explored the motivational techniques, professional development activities, and technology integration of the faculty members within the classroom. This study investigated the teaching practices and technology integration techniques used in enhancing the day-to-day curriculum. The study also addressed the technology uses within the classroom by higher education faculty as well as the various technology integration tools most used by these faculty members. Further analysis was conducted on the incorporation of professional development activities within the college structure to determine if this also assisted in the enhancement of technological usage. The sections covered in this chapter include the research design, population and sample, the instruments used, the role of the researcher, data collection and analysis, validity and reliability, and the protection of the participants.

Research Design and Rationale

The research design used for this study was a qualitative case study. The case study method was chosen because it allowed for an in-depth evaluation of the technology integration practices of the faculty in this private college. Johnson and Christensen

(2004) defined case study research as the ability to provide a detailed account of a particular case. The faculty's technology integration in the classroom was the focus of this case study. Data were collected through observations of faculty usage of technology in the classroom and interviews.

Phenomenology, ethnography, and grounded theory studies were also considered but were discarded. A phenomenological study would place the focus on the individuals experience with technology. This view would be based more on the individual's life experience and what technology means to them rather than how and when it is implemented within the classroom. An ethnographic study, in contrast would be based on the culture of the faculty rather than on the usage of the technology. While it may be discovered that there are shared beliefs regarding the usage of technology, the ethnographic study was ruled out as the focus of the case study would be the usage of the technology. Grounded theory would be based on generating a phenomenon as it relates to a particular situation. The research would prepare a preliminary interview and then gather data as it relates to the interview questions. Multiple classroom visits may be necessary as themes will be generated based on the data from the interviews. This study was ruled out because the research was not looking for a central phenomenon as the primary outcome. The case study method was therefore used as it allows for an evaluation of participating faculty members from ABC College (cases) as well as the effect of professional development activities (process) to determine technology usage and integration of the technology in faculty classrooms.

Role of the Researcher

The qualitative researcher is charged with conducting effective and unbiased interpretative research. Creswell (2003) noted that the researchers must explicitly identify all biases or personal interests on the research topic as validity of the research may come into question. As an employee of ABC College, I embarked on this study, in the role of a researcher to investigate, collect, and analyze data on the usage and integration of technology within ABC College. While the participants of this study were also employees of ABC College, there were no direct relationships with the population, as my current position is based on an online curriculum not the traditional classroom experience. To further solidify the validity of the study, a peer debriefer who holds a doctorate in higher education was used to review and ask questions about the study. The peer debriefer examined the researcher's transcripts, final report, and methodology in order to ensure that the report did not over/under emphasize any points or included biases of the researcher. Multiple meetings with the debriefer were not necessary as he concluded that the findings were based on the data obtained from the participants not that of the researcher (Creswell, 2003).

Methodology

Participant Selection Logic

A purposeful sampling technique was used to select the participants of this study. This method was selected because these faculty members were readily available and provided the information necessary for this study. The following criteria were also applied in selecting the faculty: (a) faculty members must have taught at ABC College

for at least five years and (b) faculty members must teach in either the English/social sciences, mathematics, criminal justice, business/accounting, or health departments. The above criteria used in selecting these 15 study participants resulted in representatives who were able to provide information on technology integration, as these departments contained the highest number of faculty members.

Instrumentation

Classroom observations and interviews were used to determine how the faculty actually applied technology in the classroom. Moersch's (1995) Levels of Teaching Innovation model (LoTi) (Appendix C) was employed during the observation period as it was an effective tool in assessing how faculty actually used technology within the classroom. While originally developed to assist teachers in the K-12 arena, the LoTi model has been validated as an effective tool in identifying the needs of faculty and in determining the respective professional development plans to fulfill these needs. The goals of LoTi include: improvement in professional development and teacher effectiveness within the classroom and the promotion of 21st century teaching and learning styles. LoTi uses seven categories to evaluate faculty technology usage: (0) no use, (1) awareness, (2) exploration, (3) infusion, (4) integration – mechanical/routine, (5) expansion, and (6) refinement. These categories assisted the researcher during the observation period as they focused on instruction, assessment, and the effective usage of the technology. The Loti Model has since become a LoTi Connection where schools across the country now use the Loti framework to determine the level of technology usage and integration by their faculty.

Roblyer's (2003) Technology Integration Impact Rubric (Appendix D) was also useful during the observation period as it has been documented by researchers such as Brinkerhoff (2006) in determining the effects of long term professional development training on computer skills and technology integration beliefs and practices of various faculty members. The Technology Integration Impact Rubric abetted in evaluating the faculty's level of usage: (1) minimal usage, (2) intermediate usage, (3) high usage, and (4) maximum usage; as well as in evaluating the frequency of use, the source of direction (instructor versus student), the nature of the integration, and the purpose to which the technology was used. An observation protocol (Appendix F) was designed by the researcher, and was used to capture the objectives of the lesson, the instructional practices, and the instructional material used in the lesson.

In contrast, interviews were conducted with a focus on teaching strategies directly related to technology integration. I designed the research questions, which included open-ended questions (Appendix E) that were based on and aligned with the research questions. Each interview was recorded and transcribed by me. The transcriptions were shared with the participant in order to determine accuracy. NVivo was then used to develop themes from the content, as it helped me analyze imported sources such as interviews. NVivo assisted in managing, exploring, and finding patterns in the data gathered from the interview whether in text or audio format. Topic and descriptive coding were used to document each interview and to further develop the themes. Topic coding refers to creating a code based on the topic being discussed, whereas descriptive coding or "case" coding, documents who is speaking, the place, time, or entity being

observed. An example of a topic code would be using a code such as PowerPoint and then capturing all references to PowerPoint usage in this node. These themes from NVivo and the themes developed by the researcher were shared with the peer debriefer in order to develop a concluding set of themes. These themes were then correlated to the research questions and displayed within a chart format in Chapter 4.

Procedures for Pilot Studies

A pilot study of five participants was conducted to determine if the interview questions were clear prior to its implementation within this research. Johnson and Christensen (2004) refers to a pilot study as the "cardinal rule" as it is vital to know whether or not your interview questions are understandable and focus on the data asked for in the research questions. The researcher further recommends using at least five to ten people in a pilot test who have similar characteristics to those who will participate in the actual study. The five faculty members were randomly selected for the pilot test from within the English/Social Sciences, Mathematics, Criminal Justice, Business/Accounting, and Health departments at ABC College. One faculty was selected from each department based on at least five years of employment at the college. Faculty members were readily available to participate in reviewing the interview questions for readability, understandability, and relation to the research questions.

Procedures for Recruitment, Participation, and Data Collection

A sample of 15 faculty were chosen from a research population of 200 full time faculty members. These faculty must have taught for at least five years in the English/Social Sciences, mathematics, criminal justice, business/accounting, or health

departments of ABC College. This college offers associate and bachelorette degrees in ten disciplines as well as master's degrees in business and criminal justice. Courses are offered during the day, evening, weekends, and online across three main campuses. The various disciplines are housed in five distinct schools (English/Social Sciences, mathematics, criminal justice, business/accounting, and health).

Permission to conduct a study on how technology integration is used at ABC College (Appendix A) was obtained from the college. Permission was also acquired from all participants in the study (Appendix B). The data collection comprised of responses from interviews of the faculty members who taught within five departments at the college as well as observations by the researcher of activities in the classroom. The interviews were scheduled for 30-45 minute sessions at times conducive to the participants.

Data Analysis

The plan of data analysis in a qualitative study as posed by Creswell (2003) may involve several components. An ongoing process of reflection and evaluation about the data which have been collected was necessary. The researcher must be able to "make sense" out of the text (p. 190). Identifying the data which the researcher will use, conducting the analysis, representing the data, and evaluating the overarching meaning of the data are all embedded in this process. The steps in this qualitative case study therefore included:

1. An observation protocol, designed by the researcher to record all observational data. This observation protocol (Appendix F) was designed to capture the technology used in the lesson as well as identifying the levels of

technology used within the lesson. Observations took place in 30-45 minute sessions and were conducted within the classroom. Moersch's (1995) Levels of Teaching Innovation model (LoTi) (Appendix C) and Roblyer (2003) Technology Integration Impact Rubric (Appendix D) were used to evaluate the levels of faculty technology performance.

2. The interview questions (Appendix E) consisted of eight questions based on technology integration practices, and were aligned with the research questions. All interviews were recorded using a tape recorder. Handwritten notes were also taken as a safe guard in case the recording device failed. All taped interviews were then transcribed by the researcher using NVivo. Topic and descriptive coding were then used to document each interview and to further develop the themes. Each interview question was then aligned with the research questions as follows:

Q1. What motivates higher education faculty to want to use technology in their classroom?

Interview questions 1 and 2 (Appendix E) provided the data for this question. The questions were designed as a self-appraisal of the faculty members to see if they 1) understand what is meant by technology integration and 2) to determine how they feel they can actually use this integration. The NVivo software was then used to develop themes and codes (open and axial) which were then evaluated by the researcher and the peer debriefer in an effort to analyze the data.

Q2: What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?

Interview questions 1, 2, 4, and 8 (Appendix E) was presented to the faculty as they align themselves to the various integration tools (Appendix D). These questions also focused on the comfort level of the faculty when utilizing technology as it compares to what may be considered as best practices. The NVivo software was then applied to develop themes and codes which were then assessed by the researcher and the peer debriefer in an effort to analyze the data.

Q3: What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?

Interview questions 3 through 6 (Appendix E) was designed to elicit the faculty response towards professional development activities. Probes for this question included the comfort level at the time of the incorporation versus the usage at this point. The NVivo software was once again used to develop themes and codes, which were then evaluated by the researcher and the peer debriefer in an effort to analyze the data.

Q4: How can colleges improve the professional development that is provided to faculty in the area of technology integration?

Questions 3 through 6 (Appendix E) was used to provide insight on this question as the attitude towards professional development workshops and subsequent usage of technology was the focus. Probes to this question included inquiries on the comfort level when attending the workshops. Focus was also placed on support if any, which was provided after the workshop sessions as the technology was implemented. The NVivo

software was applied to develop themes and codes which were then evaluated by the researcher and the peer debriefer in an effort to analyze the data.

Issues of Trustworthiness

Tools used in this study however, must be both reliable and valid. Mills (2003) defines reliability as the consistency in which the data used measures the items intended to be measured. Validity in contrast can be defined as a determination that the data collected will accurately test what is being measured (Mills, 2003). Mills (2003) further adopted Maxwell (1992) and the premise of understanding as a better concept of qualitative research than that of validity. The work must be factual, from the participant's perspective, trustworthy, and without any biases from the researcher. I ensured that the data were valid by utilizing the same interview questions and observation topics in each classroom.

Ethical Procedures

In order to protect the privacy of the faculty and college in this study and to receive approval from Walden University's Internal Review Board (IRB), cooperation must be achieved from the private college. A letter from the Vice President for Academics was obtained (Appendix A) granting permission to conduct this study. No faculty names were used in this study nor was any specific indication given as to which faculty failed to use technology implementation in his/her curriculum. To prevent this disclosure, codes were assigned to the participants as they are selected for participation. Letters of approval were obtained from the Vice President for Academics of the participating college and consent forms (Appendix B) were signed by the participants.

The researcher solicited permissions for this case study from all parties involved including the publisher and author Roblyer (2003) for the Technology Integration Impact Rubric (Appendix D).

All data gathered from this study were stored on a secured computer and will be retained for 5 years. All information pertaining to this study will be destroyed after that 5-year period.

Summary

This case study focused on various teaching techniques with the ultimate goal of improving the technology integration by faculty members at a private college. A focus was placed on the faculty's adoption and technology usage, their skills and knowledge of technology and any special incentives which may have been given to foster the technology implementation. The knowledge gained from this study will be used to further develop best practices for future professional development training sessions. Chapter 3 included the introduction, research design, instruments, pilot test, population and sample, data collection and analysis, reliability and quality, and the protection of participants. In Chapter 4 I present the results of the study, and in Chapter 5 I interpret the results, discuss recommendations for future study, recommendations for action, and the significance of the study.

Chapter 4: Results

The purpose of this qualitative case study was to identify and describe motivational techniques necessary for improving the technological integration within the curriculum of 15 faculty members at ABC College. The overarching research question of this case study is: What constitutes the successful technology integration into the curriculum of ABC College?

Subquestions to the overarching question are:

1. What motivates higher education faculty to use technology in their classroom?
2. What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?
3. What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?
4. How can colleges improve the professional development that is provided to faculty in the area of technology integration?

This chapter is divided into the following sections. In the first section I provide a description and impact of the pilot study. The second section includes an overview of the setting. In the third section I provide a description of the demographics of the participants as well as any characteristics that may be relevant to this study. In section four I describe the data collection process, including a detailed explanation of all interviews and observations. The fifth section includes the data analysis portion and a description of all coding and themes. I include evidence of trustworthiness, including

credibility, transferability, dependability, and confirmability and summarize the findings of chapter 4.

Pilot Study

The pilot study consisted of five faculty members who were randomly selected from the English/social sciences, mathematics, criminal justice, business/accounting, and health departments at ABC College. These individuals, as well as the 15 participants in the actual study, have been working with ABC College for at least 5 years and were readily available to assess the interview questions.

The results of the study indicated that while the interview questions were clear, the participants often provided answers to multiple questions when answering a single question. No changes were made to the actual interview questions. It should also be noted that a few probing questions were necessary during the last two interview questions as a more detailed explanation to the questions was desired.

Setting

The setting for this study was the campuses of the ABC College, located in an urban community of New York. The physical location included classrooms, offices, and faculty lounges. Interviews were conducted in areas of the colleges which provided the faculty the most comfort. Participants were given the opportunity to select the location for the interviews, to which most chose either their offices or a faculty lounge. In contrast, all observations were held in the participant's physical classrooms. No personnel or organizational changes occurred at the time of the study that may have influenced this study.

Demographics

The participants of this study consisted of 15 faculty who taught for at least 5 years in the English/social sciences, mathematics, criminal justice, business/accounting, or health departments of ABC College. The participants consisted of six males and nine females. These individuals were considered as veterans of the college, since the average number of years they have taught with the college is 14 years.

Data Collection

I began the data collection process by first contacting the Vice President of Academics in the hopes of gaining access to a list of faculty members who were employed with ABC College for five years or more. Once the listing of faculty was received, I then eliminated any faculty who did not fall into the departments of English/social sciences, mathematics, criminal justice, business/accounting, or health.

After receiving IRB approval (08-12-14-0095141), I contacted the potential participants who met the criteria as discussed in Chapter 3, via email or in-person. Participants were given copies of the consent form, research questions, and observation protocol prior to signing the consent form. After receiving signed copies of the consent forms, I then proceeded to conduct the interviews and observations. All interviews were conducted in-person at the participant's request during a 30 – 45 time period. Some travel was required as participants were located on one of three campuses of ABC College.

Interviews of the 15 participants began on August 28, 2014 and continued through October 15, 2014. All interviews followed the same protocol of a brief introduction

followed by the presentation of the eight interview questions. All interviews were recorded using the iPad/iPhone recorder app as well as the taking of detailed notes as a back-up. Most participants provided very detailed descriptions, stories, and examples during the interview process and required minimal probing questions. Recorded interviews were then transcribed into Microsoft Word and then shared with the participants for their review. Once the review of the transcribed interviewed was deemed as accurate by the participants, the documents were uploaded in NVivo 10 in order to determine codes and themes. All transcriptions were then shared with the peer debriefer in an effort to analyze the data. The transcribed documents in Microsoft Word and NVivo 10 were saved and password-protected on the computer.

The observations in contrast began on September 22, 2014 and continued through October 15, 2014. Each observation took place within a 40-60 minute time period and occurred in the participant's respective classroom. The observation protocol used during the observation was the primary source for recording the events which occurred during each session. Included on this observation protocol were Roblyer (2003) Technology Integration Impact Rubric and Moersch (1995) Levels of Teaching Innovation (LoTi) model. Any additional notes were taken directly on the observation protocol and were shared with participants.

Data Analysis

As posed by Kohlbacher (2006), data analysis in a qualitative case study is a search for patterns in the data. Once this pattern is identified, it must be then interpreted based on the setting in which it occurred, in order to find its true meaning. "The ultimate

goal of the case study is to uncover patterns, determine meanings, construct conclusions and build theory" (Patton & Appelbaum, 2003, p. 67). Once the patterns are discovered, the coding or "the process of transforming raw data into a standardized form" (Babbie, 2001, p. 309) can begin. It is during this coding sequence that the researcher begins to make judgments about the data being analyzed. Ryan and Bernard (2003) theorized that these techniques of reducing texts to a unit-by-variable matrix can be then analyzed in a quantitative mode to test hypotheses thereby allowing the qualitative researcher to generate matrices based on those codes. Creswell (1998) further signified that these patterns demonstrate the correspondence between the categories, which in essence formulates a 2x2 table that then illustrates the relationship between the categories. NVivo 10 was used in this process of discovering the patterns, developing the themes (coding), and then building the matrices through the usage of coding queries (finding the connection between the themes, ideas or topics) and matrix coding queries (compares the coded material between the nodes or attributes) from the transformed data.

Grouping

I transcribed each interview from the audio recorder into Microsoft Word. The interviews were then saved as separate files (interview1, interview2, etc…) and loaded into NVivo 10 for coding and determination of possible themes. Based on the features of NVivo, all 15 interviews were grouped according to each of the eight interview questions before any coding was attempted. Once all interviews were grouped according to the questions, the responses became readily available in one central location, where I was able to see the patterns and themes develop. An extensive review was made of all

transcripts including a review of my hand-written notes to ensure that no data were missing. It was during this process that the coding began as central themes and patterns were developed and could be identified in each answer given by the participants. Topic coding which refers to creating codes based on specific topics being discussed was used in all interviews.

The observations in contrast, were all documented through the usage of an observation protocol that I developed. All observation sheets were scanned and loaded into NVivo. Once in NVivo, the observation sheets were grouped according to the five categories as to determine any patterns and to analyze the results. In this instance, descriptive coding or "case" coding was used, as this method allowed me to analyze the class, place, instruction practices, and instructional methods being implemented in the class. With the help of the Moersch (1995) LoTi Model and the Roblyer (2003) Technology Integration Impact Rubric, and the observation protocol, a full assessment of the faculty's technology usage was developed in NVivo.

Themes/Nodes

As each of the eight interview questions were analyzed, similarities emerged thus creating each NVivo theme or node. These themes were based on similarities in the answers of three or more participants. As each theme/node was developed, subsequent queries were established based on the nodes as the content was searched on how it was actually coded. The results of the nodes and queries for each interview question are as follows:

Interview Question #1: *What motivates you or would motivate you in integrating technology in your curriculum?* The two main nodes/themes which emerged from this question were that the students were technologically savvy and the fact that technology made the class more interesting. Eleven of the participants indicted that students were their main push to technology integration. Responses provided included: "They are technologically advanced … technologically savvy, and I need to stay abreast and current." Participant #14 stated that the students were the main reason for integration, as they pushed (the faculty) to do more; while participant #2 referred to the fact that student bring technology into the classroom with them and therefore requires faculty to use what is best suited for the student. The reference to the students as being digital learners was also mentioned by participant #4 who then went on to say, "If it is true that this generation is more savvy then it just makes sense that we use the tools that they (the students) are more comfortable with."

The second node/theme that emerged from this question was that fact that, when technology is used, it makes the faculty's life a bit easier and the class more interesting. Of the 15 faculty who were interviewed, eight mentioned the classroom setting or enhancing the interest in the classroom as a motivating factor of technology integration. Participant #11 stated, "I love using current events in my classes and what better way to keep their interest than to have them pull out their cell phone and google a topic … I can have my students find anything online in an instant." Other participants alluded to the fact of breaking the monotony of the class or keeping the students intrigued and involved. "It's vital to keep them engaged" commented participant #7 or "In teaching Math, I

needed a new way to reach my students, to keep them interested, to keep them excited about Math … adding technology does that."

Other nodes/themes which emerged from question #1 included being motivated to use technology based on its ease of use (mentioned by three participants); if it was mandated by the college that the faculty had to use a particular technology (mentioned by two participants); and finally, three participants alluded to personal knowledge or advancement as being the motivational factor in implementing technology into the curriculum. Overall however, the central theme from the participants for being motivated to use technology in the classroom was the students. Even in mentioning that it breaks the monotony of the classroom or makes that classroom more interesting, those answers still had the students as the focal point.

Interview Question #2: *What can the administration do to assist you in integrating technology in your classroom?* The result for this question developed into two overarching nodes/themes, training and release time. Ten of the participants identified enhanced or additional training as the main assistance which can be provided by the administration. Responses included: "I think professional development sessions would help" … "Provide training when it becomes necessary" … "I need more training, one-on-one training." Participant #14 stated, "I don't feel comfortable using computers so I may need more help than what is provided. I hope the college would give us someone who can assist us to learn how to use the technology effectively." It was then suggested that along with the training or enhanced workshops, the college should provide release time to master the technology. Participant #4 stated, "just as the students take time to learn, the

administration should give the faculty more time to learn the tools after they have attended the workshop sessions." "More practice time is needed" and "faculty need release time to learn all of the best practices" were mentioned by three additional participants.

The final node/theme that emerged from this question was only mentioned by participant #3 and participant #9. These individuals felt that if there were incentives in why they should implement the technology, then they would be more apt to use the technology in the classroom. They stated: "Managing change is a process and ultimately people will embrace change if they see how it will benefit them personally." "If we can see the benefits and see it demonstrated in a concrete sense then maybe we would be more likely to adopt or embrace it fully."

Interview Question #3: *Does your school provide professional development workshops? If so, how may do you attend? If not, has there ever been a request for such workshops?* The overwhelming response to this question by all participants was yes, the college does provide professional development workshops every semester. It was also disclosed that if a particular workshop was required, a request could be made by either the faculty or department chair to have a special professional development workshop placed on the schedule. The differences in the answers however were documented in the second portion of the question, *how many do you attend*? NVivo's matrix coding query was used in developing the result to this question as documented below. Seven individuals specified that they attended professional development sessions 1-2 times per semester while 3 attended 1-3 times per year. Five participants indicated that they

attended “a lot” which upon further probing was explained as “I try to attend as many sessions as possible throughout the semester.”

Interview Question #4: *How do the professional development workshops assist you in integrating technology in your classroom?* The answers to this question were varied as participants spoke more of their comfort level in implementing the technology. Participants #2, 6, and 8 spoke specifically about using the Learning Management System – Blackboard, because it was mandated by the college. “I think Blackboard is very helpful for the classroom. As I become more familiar with the platform, then I can do more things in the class … that training was not geared towards technology integration but more towards using a required software.” Participant #4 however shared the following: “It makes me aware of what’s available. For example, I was not aware of YouTube’s Educational videos until I attended a professional development session” and participant #2 response of “It’s important to know what is available.” Participant #7 and #11 indicated that it assisted them in becoming more confident in using the technology and more specifically in “diminishing their fears.”

The other two themes that developed from this question were about connecting with the students and having peer mentors. Four of the participants mentioned “gaining more ideas to try new things with students” or as mentioned by participant #7 “it breaks the barrier between me and the students.” A follow-up question was asked here as to ascertain further was barrier existed and was given the following answer: “technology allows you to keep in touch with the students and to connect with them. We can change

or deliver or courses to the students in a more interactive way. I no longer feel I am disconnected from them, especially when they refer to their gadgets."

Finally, peer mentoring was mentioned by participant #1, #12, and #15 in the following context: "The workshops are really good because they allow us to learn not only from the lecturer, but from others attending the sessions." "We have peer interaction … peer learning occurs in the workshops and this way we can see how it can really be used in the classroom." "Sometimes the workshops are great but until I can see where someone else is using it in their class and it works for them, I would not try it. I need to know it works for someone like me, not just for the facilitator."

Interview question #5: How have these workshops assisted you in your teaching techniques? Two main nodes/themes emerged from the answers to this question. Ten participants indicated that they feel more empowered to use the technology after attending the workshops. "I am no longer scared", indicated participant #1, "I am more willing to try new things." "I incorporate more one-on-one activities with the students as they implement the usage of technology" stated participant #10. "I try to bring the student directly into the lesson" stated participant #13, "videos and interactive sites are now the norm." A number of participants mentioned the usage of YouTube videos but when questioned as to how they actually used those ideas, many answers were simply based on watching the video and then discussing the topic. When asked whether this was considered an effective tool in technology integration, the answer was a resounding yes! "Our students possess different learning styles, stated participant #4, many of which are visual learners." "If I play a video depicting a crime scene, they will react to that video in

a more positive manner than if I simply asked them to read the chapter" stated participant #12. "I now use polls for immediate feedback," stated participant #6. "I allow my students to use technology in completing their assignments" was the response from participant #2. When asked how this was accomplished, the response was "If I am lecturing and they don't understand a particular term, I simply let them use their phones to google the answer. We then use that as a teaching tool and that spills into other sites where they can also find answers." It was quite apparent that the participants were well pleased with the technology integration and proceeded to inform me that I would see it all in action when I visited the classes for the official observations.

The response to the question of how the workshops assisted in teaching techniques was met with themes based on attitude and access from the other five participants. Participant #11 stated, "the workshops has helped me to navigate computers in general … they help me understand the technology." "I created groups and blogs for my students so they can meet with their classmates at any time." "I want them to use it outside of the classroom," indicated participant #5. "They can post topics and continue to work even if I am not around, indicated participant #3, #9 and #15. The ability for students to work outside of the classroom was important to these participants, as was an attitude of confidence in the implementation of the technology.

Interview question #6: *What do you find most helpful in the workshop? Least helpful?* The participants took quite a bit of time in formulating the answers to this question. The table below describes themes constructed from the answers of most helpful versus least helpful attributes of the professional development workshop.

Table 3 *Themes derived from Interview Question #6*

What do you find most helpful in the workshops?	What do you find least helpful in the workshops?
Ability to ask questions	Groups are too large
Awareness of various techniques	Various levels of participants
Facilitator is always helpful	Not enough time
Hands-on Training	

Interview question #7: *Where do you see yourself using technology within the next 3-5 years? Why?* The responses to this question fell basically into one node/theme, the classroom. While all the participants mentioned in some way that they intended to increase their technology integration skills with the classroom, the specific areas fell into the following categories: Integrated usage with a variety of technology, more hands-on exercises with the students, vary the type of technology used to address the various learning styles of the students, and increased usage based on student demand. Participant #1 stated, "I think technology will continue to be increased in my classes because the administration continues to provide more access to the students. If that is the case then I have no choice other than to increase my usage. It opens up a whole new window of information." Participant #8 indicated that "whether we want to or not, we will be pulled into increasingly using technology as a tool. The students will continue to demand more, therefore we will have to comply or be left behind." In addressing the theme of hands-on usage, participant #2 indicated, "I will definitely allow my students to do more hands-on assignments as opposed to simply lecturing all the time. They will be able to add to the class structure by using the technology to bring in new ideas to the topic of the day.

Whether they complete the research prior to coming to class or use the computers in the classroom during the lecture, I am excited to see the learning process take a new turn."

Interview question #8: *What would assist you in using technology more in your classroom?* Three main nodes/themes emerged from the coding of these answers: the necessary tools (hardware and software), additional training, and time. This question saw an overlap with the answers provided as seven participants provided answers which indicated that the proper hardware and software were as important as the proper training. Participants #1, 7, 10, 12, and 13 indicated that providing the proper hardware in the class would encourage them to use the technology more. Participant #1 specified, "if colleges made the resources available then gradually and exponentially you will see professors gravitating to technology in the classroom." In addition, participant #5 identified, "we need more smart rooms … we need the technology available to us. More computers must be available in the classroom."

These individuals also indicated that training must be available and on-going. The participants all believed that the confidence gained from the proper training would then increase the usage of technology by the faculty. "Training must be available to build our professionalism and confidence in using the technology" stated participant #12. Some participants specifically mentioned various tools as being antiquated such as PowerPoint. "We need more training, specified participant #5, PowerPoint is antiquated. We need more styles to keep our presentations fresh … we need to keep up to date."

Additionally five participant indicated that time was a big factor. "Many of us cannot find the time to be inventive" indicated participant #1. Participant #14 pointed out

that a smaller course load (teaching fewer classes) would assist faculty in finding the time to learning how to use the technology effectively. "We need more time to learn the technology and then implement it" indicated participant #15. "Make sure the faculty has the time to learn the technology, stated participant #3, it is not all about the resources, we need the time to use the resources." Participants specified that "time is a big factor, we need more time to learn the stuff and then do the stuff."

The findings from the observation protocols demonstrated that while the participants indicated that they were integrating technology into the curriculum, they are at level two both on Roblyer (2003) Technology Impact Rubric and Moersch (1995) LoTi Model. As documented in Table 4 below, the nodes/themes developed were consistent with lessons that are still teacher-centered with limited student choices.

Table 4

Nodes/Themes developed from the Observation Protocol

Protocol	Themes/Nodes
Instructional Practices	Faculty used teacher-directed question/answer, discussions, student-led exercises, and provided opportunities for practice.
Instructional Material	Faculty predominately used the board, overhead projection, YouTube videos, and the textbook as they delivered the lesson.
Engagement/Integration Level (Impact Rubric)	Faculty only demonstrated intermediate and engaged usage of technology in the lesson.
Levels of Technology Implementation (LoTi)	Faculty's technology implementation as demonstrated in the lessons are exploration, infusion, and integration.

The findings from the interview questions and observations demonstrated that while the participants are dedicated to their student's success, they have not provided the full integration where the teaching would be considered student-centered. The instructional materials are based on either YouTube or instructional material from the textbook, which does not grant full engagement to the students.

Discrepant Cases

Discrepant data can be defined as any inconsistencies in the findings. In this case study, no inconsistencies were discovered in the interviews or while performing the classroom observations.

Evidence of Trustworthiness

Guba (1981) postulated that trustworthiness can be addressed in qualitative research by addressing the characteristics of credibility, transferability, dependability, and confirmability. These four aspects were further emphasized by Shento (2004) as supports to the validity and reliability of a qualitative research. The section below provides the approach used for establishing validity and in ensuring that the data was interpreted correctly thus providing a rationale for the development of themes.

Credibility

Credibility as defined by Mills (2003) is the researcher's ability to organize all the various and complex areas of the study into a more general format. To ensure the credibility of this study, I immersed myself in the day-to-day settings of the faculty being observed. This provided prolonged participation at the study site, which afforded

additional opportunities to test any biases or perceptions. Guba (1981) recommended prolonged engagement between the researcher and the participants, in order to obtain a better understanding of the organization, as well as in establishing a relationship with the participants. The random sampling technique was used in the selection of the participants as this negated any biases which may have been attributed to the researcher in the selection of the participants. I also implemented triangulation in the form of interviews and observations. This strategy allowed me to cross check the responses from the interview questions with the actual techniques used in the classroom during the observation process. Finally, a peer debriefer was used to review and ask questions about the study (Mills, 2003). One of the main requirements of this peer debriefer was to examine my transcripts and subsequent report in order to ensure that the report did not over/under emphasize any points or include biases of the researcher.

Transferability

Merriam (1998) defined transferability as the ability to apply the findings of one study with that of other areas. In order to facilitate this criteria Guba (1981), recommends that the collected data be detailed and descriptive so that the reader will be able to apply a comparison between the given circumstances with other possible situations to which the transfer may occur. "The transferability of an action research account depends largely on whether the consumer of the research can identify with the setting" (Mills, 2003, p. 79). To ensure transferability, I elected to use the largest departments of ABC College in selecting the population sample and then provided detailed descriptions of the tools used during the observations.

Dependability

Dependability refers to the ability of the research findings to be replicated in similar situations and produce the same results. The data must be stable which may require the usage of two or more methods in order to solidify dependability (Guba, 1981). In order to establish the stability of the data, I used both the interview and observation strategies. Thus the interviews were used as a tool to better understand what was occurring during the observations. An audit trail can be seen as all interviews were dated, transcribed, and then uploaded into the NVivo 10 software. Further, a peer debriefer was used to review not only the raw data (recorded interview, written notes, and observation protocol) but the subsequent findings as well.

Confirmability

Confirmability can also be called the objectivity of the data. This characteristic is vital as the researcher must remain objective and set aside all biases during the research process. The researcher must ensure that all findings actually derive from the data gathered and not that of the preferences or preconceived ideas of the researcher (Shento, 2004). Triangulation was therefore used once again to ensure that no biases were instituted into the findings. The peer debriefer was provided with all raw data, including the audit trail (notes, recordings, transcripts) to ensure that no personal biases were included in the findings.

Results

The results of this study will be presented in relation to the research questions.

Research Question 1: *What motivates higher education faculty to want to use technology in their classroom?* Interview questions 1 and 2 (Appendix E) provided the data for this question. These questions fostered a self-appraisal of the faculty as it allowed them to evaluate their interpretation of their current technology usage as well as their reasons for using that technology. Fifteen faculty members who have taught at ABC College from five to twenty nine years provided answers to this question. Further evaluation was also made on their perceived needs as they interpreted what would assist them to use the technology more.

Interview question 1: *What motivates you or would motivate you to use technology in your classroom?* The first theme which emerged as a great motivational factor was the student's own technological abilities. The initial coding and generated themes identified the faculty's fear of being "left behind" or not being able to "keep up" with the technology used by the students as a great motivator. Eleven faculty stated that students were their greatest motivational factor. The faculty identified the students as assisting them in using various tools in their classes or even in suggesting the usage of a particular technology. One faculty member stated that the students "pushed her to do more." Many referred to the students as "tech savvy" or "digital natives" and felt that technology in the classroom was almost second nature for them.

Faculty also mentioned that technology was beneficial in addressing the various learning styles of the students as was thus used as a retention strategy. It was interesting to note that regardless of the years of teaching experience, the participants all indicated that technology was a necessary tool for reaching the students.

The second major theme which developed was the ability for technology to enhance the class or make it more interesting. Eight of the participants either mentioned social media, PowerPoint presentations, Google searches, or Poll anywhere as examples of ways which motivates them to use technology. It was thought that these tools assists in keeping the class "fresh" and in allowing the students to develop their own understanding of the lesson. Being "interactive" and "breaking the rhythm" of the lecture were also mentioned as motivational reasons for using technology.

The observations also assisted in answering this question as support could be seen in the usage of specific technology such as PowerPoint presentations, Google searches, and YouTube videos to that of the eight participants who mentioned that technology enhanced the class or made it more interesting. All 15 observations evidenced some form of "teacher-directed" question and answer during the lesson, which was supported by either a video, visual aid, or website. All faculty observed also used the whiteboard.

Five of the observations conducted included student presentations. These presentations showcased the usage of PowerPoint, Prezi, YouTube clips, and Animoto. It was also clear that the faculty were not comfortable with the usage of Prezi or Animoto as the students answered numerous questions on how the presentations were designed.

Interview question 2: *What can the administration do to assist you in integrating technology in your curriculum?* The themes that developed from this interview question were more training and faculty release time to learn the technology. Ten of the 15 participants identified more training as a requirement. Schreyer-Bennethum and Albright (2011) suggested the creation of bi-weekly meetings or additional trainings as small steps

to technology integration. It was an overwhelming belief that if additional trainings were available and if those trainings were organized by levels (beginners, intermediate, and advanced), then faculty would become more comfortable with the technology and then use it more. Rogers (2000) identifies the creation of a cohesive training program with enhanced technical support as a requirement for all universities who wish to implement technology integration on a large scale.

The ability to have faculty release time to learn the technology was also mentioned. Faculty believed that their work load was too extensive and prevented them from really learning the technology the way they would like to. The release time of the faculty was compared to that of the student's learning curve, "as the students take time to learn, the faculty should also be given sufficient time to learn the new tools."

The observations further document that the faculty's instructional practices centered around discussions, teacher-led question and answers, student led exercises, and presentations. Instructor materials consisted mainly of overhead, whiteboard, YouTube videos, and the textbook.

Research Question 2: *What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?* Interview questions 1, 2, 4 and 8 (Appendix E) provided the data for this question. The comfort level of the faculty was the basis of these questions as the participants were encouraged to evaluate how they use technology in the classroom. A better understanding of the relationship that technology plays within the classroom is also a factor in the integration process.

Interview questions 1 and 2 states: *What motivates you or would motivate you to use technology in your classroom? What can the administration do to assist you in integrating technology in your curriculum?* As noted above, these questions demonstrated that the faculty use some form of technology in the classroom but as documented from the classroom observations, they are used at a lower stage (Stage 2 – Roblyer, 2003, Technology Integration Rubric), which includes teacher-directed question and answer, using an overhead projector or YouTube videos as instructional materials. While some level of technology engagement was at the infusion level where the teacher is the central point with limited student choice of technology usage (LoTi model), the majority of engagement was concentrated on the faculty as a way of content understanding.

Fear and uncertainty can be said to be factors which may contribute to the minimal usage or lower level of technological integration in the classroom. While many of the classrooms were equipped with the latest in computer software and hardware, the ability to successfully use this hardware was nominal. Participants indicated that enhanced and frequent training programs are required. "I need more training … one-on-one training" was the response of one participant. "I need to be acclimated with the technology" indicated another. Faculty mentioned proper and frequent training as ways to enhance their integration of technology. "We must see the benefits demonstrated to us … we need to see how it works before we can adopt or embrace it."

Interview question 4: *How do the professional development workshops assist you in integrating technology in your classroom?* Participants specified that while they found

the professional development workshops to be helpful, they were not long or frequent enough to develop a comfort level with the topic presented. "I use what I feel comfortable with" was the response of one faculty member. Others mentioned their integration level as being based on how frequently they use a particular technology … "the more you do it, the easier it becomes."

The fear factor of implementing a new technology is definitely a contributing factor with this group. Trying "new things" while a desire, is often eliminated when the thought of maneuvering the hardware and software is considered. Participants indicated that while questions can be asked and answered very quickly within the professional development sessions, they are not so readily available once the session ends, thus producing another level of uncertainty. For some faculty, the integration process has taken years, as they try a "few new things" each semester. Once the comfort level is achieved for that particular item, another tool may be added. As noted by one participant, "the more familiar I am with the technology, the more I am apt to use then in my class."

Interview question 8: *What would assist you in using technology more in your classroom?* Three themes emerged from this question, the proper/necessary hardware and software, additional training, and time. The faculty was quite vocal in the requirement of additional training and release time in assisting them with an elevated level of technology integration. There was a request for additional "smart classrooms" especially in the department of mathematics and allied health, but with those rooms, the request was then presented for additional training to not only use the software but in using the hardware in

an effective manner. "If the resources are available, then gradually and exponentially the professors will gravitate towards technology in the classroom", stated one participant.

Research Question 3: *What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?* Research Question 4: *How can the college improve the professional development that is provided to faculty in the area of technology integration?* Interview questions 3, 4, 5, 6 and 7 (Appendix E) were instrumental in answering research questions 3 and 4. Faculty were asked to evaluate their experiences with the professional development activities offered by the ABC College as well as their comfort level before attending any workshops as compared to the level after the workshops. Further probes were made as to what would be necessary for a larger scale of technology integration.

Interview question 3: *Does your school provide professional development workshops?* If so, how many do you attend? If not, has there ever been a request for such workshops? The faculty all agreed that the college does provide professional development workshops, and were in agreement with its necessity. Multiple workshops are said to be offered each semester on various topics dedicated to faculty development. The majority (seven) of the faculty attends at least 1-2 workshops per semester, while 3 participants indicated only attending 1-2 per year. When asked about the infrequency of attendance at the workshops, the participants indicated that their attendance was based on the topics offered. Other faculty simply stated that they attended "a lot" of sessions, some mentioning attending "all of them." The participants indicated that while there

were multiple professional development sessions each semester, they desired the ability to have trainings/workshops as needed.

Interview question 4: *How do the professional development workshops assist you in integrating technology in your classroom?* The participants believed that the professional development workshops could be improved in terms of organization by specific topics and levels. Participants alluded to the thought that if they were made aware of specific technologies that could assist them in better utilization of the tools they now possess, they would be able to use those tools in a more effective and efficient manner. It was supported by all participants that their integration of technology was based heavily on what was taught in the professional development workshops. It was stated that although students may introduce various technologies in the class through their various assignments, the comfort level of the faculty occurs after the workshops.

Peer mentoring was also another theme which derived from this question. The participants believed that if they can see others use the technology and assimilate the usage in their own classroom, they would be more apt to use the technology. Wang and Patterson (2005) concludes that successful infusion requires understanding and addressing the faculty's self-interest. An alignment is needed between the technologies that the faculty will use with that of the actual professional development workshops.

Interview question 5: *How have the workshops assisted you in your teaching techniques?* Faculty felt that classroom effectiveness was a pivotal them derived from this question. The professional development workshops, if organized correctly, could be a great asset to enhancing the comfort level of the faculty. All courses observed

exhibited some form of technology integration. Whether it was the usage of discussions through a learning management system such as Blackboard, or watching a YouTube video and then have a lively discussion, the technology could be seen in the classroom. All participants felt that the addition of smart rooms into each classroom assisted them in the integration. No longer did they have to request individual laptops and projectors in order to teach their classes. The technology was available and coupled with the workshops, brought the faculty from an awareness level into the exploration and infusion levels.

The classroom observations supported this engagement level, as all 15 faculty members being observed used PowerPoint presentations and YouTube videos as their main instructional materials. The exploration and infusion levels are still at the stage of teacher-centeredness, where content understanding and limited student choice in technology usage could be seen.

It should be noted that most faculty have not achieved a full integration mode of successfully assimilating 21st century skills into their lessons, and making the lessons more student-centered. It is this goal that the faculty hopes to achieve, as the lessons would become more highly engaged by both faculty and students. Confidence building is therefore vital in this process; they must feel that as they learn the implement the technology, the necessary resources (hardware, software, and training) will be available.

Interview question 6: *What do you find most helpful in the workshops? Least helpful?* Faculty was quite vocal in their responses to this question as their answers were vast. The themes developed however, focused on being able to ask questions while in the

workshops as well as being able to share ideas with their colleagues through various techniques. The faculty was believed that being able to share the techniques with their colleagues was instrumental in their own integration level as it boosted their confidence after seeing someone else "use the technology."

In identifying the least helpful areas of the professional development workshops, the faculty was able to share their thoughts on how these workshops could be improved. The participants desired for there to be smaller group sessions as well as workshops which are organized in levels. It was quite apparent that the faculty, while appreciative of the ability to ask questions and have the workshops open for such questions, did not appreciate the manipulation of the sessions by individuals. "I get a bit annoyed when the facilitator has to repeat certain items a thousand times" indicated one participant. It was therefore recommended by a number of participants that the workshops be organized into different levels, as sessions that are open enrollment do not usually cover the advertised topics. Further, the participants also requested that workshops be more frequent and occur in longer time frame. Repeated sessions were also requested for those who may like to attend a refresher workshop.

Finally, Interview question 7: *Where do you see yourself in technology usage within the next 3-5 years? Why?* These questions provided a self-reflection for the participants as they were able to evaluate their current usage, the requirements of their students, requirements of the colleges, and their own personal goals in answering this question. The theme which developed from this question was increased technology usage within the classroom. The belief by all participants was that technology would

continue to evolve and increase. They did not see a decrease in either the usage by students or themselves in the next 3-5 years. It should also be noted that participants who have been employed by the college for over twenty years also indicated that they see an increased usage of technology in their future. Whether their skills will be promoted in a particular discipline (wanting to be an expert in one area) or in all classes, the enthusiasm was present. They were all willing to learn.

Summary

Chapter 4 provided a detailed summary of results of this case study. By including a brief introduction of the purpose and research questions, a description of my pilot study, setting, demographics, and data collection process, I was able to set the stage for the data analysis. The data analysis section included the resulting themes from the eight interview questions, as well as discrepant cases. A section on trustworthiness was also included as this included strategies used in ensuring credibility, transferability, dependability, and confirmability. Finally, the results of the study were presented as each research question was highlighted and interpreted through the interviews and observation of the 15 participants. The significant findings were:

- Research Question 1: *What motivates higher education faculty to want to use technology in their classroom?*
    a. A desire to assist the students
    b. Ability of technology to enhance the learning experience and to make the classroom more interesting

- Research Question 2: *What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?*
    a. Lack of confidence in using the technology
    b. Inadequate training
- Research Question 3: *What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?*
    a. Request for increased trainings
- Research Question 4: *How can the college improve the professional development that is provided to faculty in the area of technology integration?*
    a. Need for smaller group sessions
    b. Training sessions designed for varied levels of technology integration

In Chapter 5 I include an introduction, the interpretation of the findings in accordance with the literature review and framework presented in chapter 2, any limitations of the study, recommendations, implications, and a conclusion.

Chapter 5: Summary, Conclusions, and Recommendations

The purpose of this qualitative case study was to identify and describe motivational techniques necessary for improving the technological integration within the curriculum of 15 faculty members at ABC College. The study was conducted to provide the administration of ABC College with best practices for future professional development workshops and for enhanced technology integration techniques.

This chapter includes the summary and interpretation of the findings of this study. The interpretations will correspond to the research literature compiled in Chapter 2, the framework of diffusion theory as presented by Rogers (2003) and Vygotsky (1994), as well as the technology integration model of Johnson and Liu (2000). Further, I discuss any limitations of the study, recommendations for further research, and the implications for social change.

Summary of Findings

Research question 1 investigated what would motivate the faculty to use technology in their classes. The first significant finding from this question was the faculty's desire to assist their students. The second key finding was the ability for technology to enhance the learning experiences of the students and to make the classroom more interesting.

The second research question explored reasons for limited or nonusage of technology by the faculty. This question produced two key findings: lack of confidence in using the technology and inadequate training. The participant felt that if they were not comfortable with using the technology then they would not try to implement it within

their classes. They also indicated that the lack of confidence could be corrected if they were given additional training.

The third research question explored the professional development or specific assistance which the faculty deemed as necessary in order for them to feel more comfortable with the technology integration. The finding which arose from this question was increased faculty training. The faculty indicated that while the equipment is available, additional and specific workshops are necessary.

Finally, research question 4 explored how the college could improve the technology based professional development activities it provides. The key findings for this question indicated the need for smaller group sessions and sessions appropriate to faculty at various technology levels.

Interpretation of the Findings

Interpretation of the findings will be presented in relation to each research question as they are identified in the research presented in Chapter 2. Rogers (2003) diffusion of innovation theory, Vygotsky (1994) activity theory, and Johnson and Liu (2000) Technology Integration Model will be used as the theoretical framework.

The first research question was: *What motivates higher education faculty to want to use technology in their classroom?* The first finding had the students emerge as the focal point of why technology should be integrated into the curriculum. The research indicated that faculty must be ready to meet the changing needs of the students. Pilgram et al. (2012) supported this thought as they studied the technology enriched classroom implemented in many K-16 schools. These steps were vital for students to be prepared

for the workplace and citizenship. It is through the integration of technology where they (students) will be able to learn these 21st century skills.

The second finding is that of technology enhancing the learning experience of the class. While many faculty may agree that technology enhances the classroom experience, many will not use these tools (Wright and Wilson, 2007). Technology integration therefore becomes more than access to various tools and equipment, it is the means of improving the faculty's professional productivity as well as in promoting the student's learning and engagement (Hernandez-Ramos, 2005).

The theoretical framework of diffusion theory further supports these findings as it demonstrates innovation as not being based on any scientific study but on subjective evaluations of others who have already adopted the innovation. Rogers (2003) defined social system as a group or interrelated units who engage in problem solving in order to accomplish a particular goal. Within this social system there are change agents who can then affect the outcome of that goal. The students in this case can be identified as the change agents for technology integration in the curriculum. Their desire to use technology in the curriculum is what affected the decision of the faculty to then integrate the tools.

The second research question was: *What are the reasons that the faculty of ABC College do not use technology in the classroom or use it in a minimal manner?* This question produced two key findings: lack of confidence in using the technology and inadequate training. The first finding can be seen in the two-step process of Wang and Patterson (2005) who believed that the only way to have successful diffusion was to first

understand and address the interest of the faculty. This process involves the faculty's passion prior to the integration and then building on the value by including all the requirements to make this integration come to fruition. Xiaoqing et al. (2013) noted two barriers in technology integration, the lack of specific knowledge and the attitude and belief towards using the technology. Al-Bataineh et al. (2008) believed that the obstacle with lack of technology integration occurs most when faculty are not familiar with the technology. Hicks (2011) further noted that intimidation, insecurity, and inadequacy are major reasons why faculty continue to resist technology. The fear is intensified by "looking stupid" before their tech savvy students (p. 189).

The second finding, lack of or an inadequacy of training, was addressed by Collis et al. (2010). It notes that a key factor in the effectiveness of the integration is the training the faculty receives. An aversion will occur however, because they are unfamiliar and uncomfortable with technology (Mitchell, 2011). The SoC framework measures the concerns, attitudes, and feelings of individuals as they attempt to embrace a particular innovation. Rogers (2003) diffusion of innovation theory examined the faculty's attitude towards the technology integration and deemed it as a key element in its diffusion.

The third research question was: *What professional development or assistance does the ABC faculty require in order to feel more comfortable using technology in the classroom?* The key findings here were increased faculty training and release time granted to attend these sessions. Yu and Smith (2008) identified obstacles of technology integration as lack of training and lack of time. When are the training sessions available?

Will someone be readily available to assist the faculty? These are two questions that may influence the integration process. The faculty must be able to identify that the benefits outweighs the drawbacks (Weston, 2005).

Vygotsky's activity theory is clearly seen here as it determines how the faculty interacts with the technology and when the adoption will take place. While the technology (equipment) is readily available, Vygotsky posits that increased usage of the technology will lead to favorable outcomes. The participants in this study also believed that if they were to practice more, be granted more release time or more training, they would then be more comfortable with technology and be more apt to use it in their curriculum.

The final research question was: *How can colleges improve the professional development that is provided to faculty in the area of technology integration?* The key findings from this question included the desire for the professional development workshops to be held in smaller group sessions and to have separate training sessions for individuals at different levels. In the study completed by Kopcha (2010), it was noted that peer or team teaching was beneficial to faculty. This allowed the faculty to identify with another colleague who is using the innovation. "Motivating teachers towards using technology … has a better chance of success when implemented over longer periods of time and with appropriate support" (pg. 187).

The incorporation of interactive modules as noted by Neo (2007) and Parekh (2006) were deemed to be beneficial as support for faculty who were at different levels of technology integration. The integration of Moersch's LoTi model would be instrumental

in assessing how faculty actually use technology thus placing them in the proper workshop sessions. Though not used at the higher education level, LoTi has been used extensively in the K-12 arena as an effective tool in evaluating and identifying the needs of the faculty and then designing the appropriate training course or initiating the professional development plan.

Limitations of the Study

The limitation of this case study was tied to trustworthiness, more specifically in addressing the characteristics of credibility. As the participants were provided with the research questions and observation protocols, the technology integration practices which were observed in the classroom may have been planned as to shed a positive light. Faculty may then revert back to typical practices or minimal usage of technology after the observations concluded.

Recommendations

While the research continues to evaluate the technology integration practices of K-12 curriculum, there remains a gap in the research for higher education technology usage. It is therefore the recommendation of this study that further research examine the effects of prolonged professional development sessions on the faculty technology integration practices. These workshops should be organized by topic or levels of integration as to ascertain if a correlation exists between the training provided and the actual usage within the classroom. In addition, the perception of what is deemed as technology integration must be evaluated, as lower-order technology usage tends to be the norm.

It is also recommend that the college puts forth a strategic plan for technology implementation within the curriculum. This plan should include the various stages of technology usage, an appropriate timeline for the implementation and the required support for the faculty.

Implications for Social Change

This study will contribute to positive social change in the following ways: A blueprint has been created as to what faculty deem as necessary for successful technology integration after attending professional development activities. Faculty can now be assured that their voices were heard and that future professional development activities will be designed with their best interest at heart. Although many workshops are held, there seems to be a disconnection between what is being taught in the workshops and what faculty members are implementing within their classes.

In addition, this study will contribute to positive social change as it provides an area where higher education faculty can have a voice as to their training and technology support needs. As the administration makes changes in regards to technology, a dialog can now occur based on innovation, time to implementation, and its effect on the social system.

Conclusion

This qualitative case study sought to explore the motivational factors necessary for incorporating technology into the curriculum of a private college. There was limited research conducted in this area, as the push for technology has always been at the K-12 level. It was therefore difficult for faculty to embrace this new mandate of technology

integration, as proper training and support were not available. Rote learning must be a thing of the past; technology is the driving force to assisting the faculty communicate better with the students (Roblyer, 2003).

The results indicated that while the faculty embraced the concept of technology integration, they were still doubtful of its implementation due to limited technology skills. Rogers (2003) diffusion theory postulates that the lack of confidence and "afraid to try" responses were based on the desire for additional professional development workshops and prolonged support. As noted by Reed and McNergney (2000), technology by itself cannot improve the quality of education it must be coupled with curriculum and instruction.

Further analysis was also conducted on the incorporation of professional development activities within the college structure. Vygotsky's activity theory suggested that the adoption of the technology would only be determined by how the faculty actually interacts with the technology. It is therefore vital to provide the faculty with the necessary hardware, software, training, and support in order to foster a successful technology implementation.

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Appendix A: College Letter

July 21, 2014

Walden University
155 Fifth Avenue
Minneapolis, MN 55401

Subject: Approval to conduct study at ABC College

To whom it may concern:

Jacinth Coultman has been granted permission by A B C College to conduct the study of *Motivating Higher Education Faculty Members in Technology Integration.* Ms. Coultman has agreed to furnish all fifteen participants with a consent form which documents the background and procedures for this study. Ms. Coultman further assures ABC College that this study poses no foreseen risks to the participants or to the college.

Ms. Coultman will be allowed to interview the participants as well as conduct any necessary classroom observations to assist in the data gathering. She has agreed that all pertinent data which may assist the college in its professional development ventures will be shared with the academic team at ABC College.

If you have any questions or concerns, please do not hesitate to contact me at (xxx)xxx-xxxx or via email at xxxxx@abccollege.edu.

Sincerely,

Vice President for Academics

Appendix B: Participants Consent Form

Motivating Higher Education Faculty in Technology Integration
Consent Form

My name is Jacinth Coultman, a doctoral candidate at Walden University - Educational Technology program, and I will be conducting a study based on effective techniques used to motivate higher education faculty into integrating technology into the curriculum. You have been selected as a possible candidate for participation in this research study based on the number of years you have taught at the college and the school or division in which you teach.

Background Information:

The purpose of this study is to identify effective motivational practices used to strengthen technology integration within the higher education curriculum. This study will be useful in increasing the technology integration within the curriculum and the professional development activities used in preparing higher education faculty members.

The following research questions will be used to assist the researcher in qualitative data on technology integration practices.

1. What motivates higher education faculty to use technology in their classroom?
2. What are the reasons that higher education faculty do not use technology in the classroom or use it in a minimal manner?
3. What professional development or assistance do higher education faculty need to feel more comfortable using technology in the classroom?
4. How do schools provide assistance in learning how to use technology in the classroom and how can it be enhanced to be more effective?

Procedure:

If you agree to be a part of this study, you will be asked to do the following:

Complete a questionnaire regarding your level of technology usage and expertise.

Be interviewed and observed regarding the following:

What is your view of technology integration in the classroom?

What are some ways in which you integrate technology into your curriculum?

What are possible hindrances to technology integration?

How has the professional development workshops motivated or discouraged the usage of technology in the curriculum?

Allow the researcher to observe various classroom sessions while you are integrating technology into your class content.

Risks and Benefits of Being in the Study:

This study poses no foreseen risks to the participants.
The benefits of this study would identify the areas where additional professional development may be necessary to enhance faculty technology usage. This enhancement would benefit all disciplines participating in this study.

Confidentiality:

All records from this study will be kept in private. No names of any participants will be used in this study as all participants will be issued a code. All records will be kept in a locked file where only the researcher will have access to such files. The researcher will transcribe all audio tape recordings and will keep such transcriptions for five years as deemed necessary by the dissertation committee.

Voluntary Nature of the Study:

Your decision to participate in this study will not affect your current or future relations with Walden University. If you decide to participate, you will be free to withdraw at any time.

Contacts and Questions:

The researchers conducting this study are Jacinth Coultman and Dr. Linda Crawford. If you have any questions, you may contact the researchers at:

Jacinth Coultman
xxxxx

A copy of this form will be supplied to you for your records.

Statement of Consent:

I have read the above information. Any questions that I may have had I have asked and have received answers. I consent to participate in this study.

Signature:_____ Date:_____

Signature of
Investigator:_____ Date:_____

Appendix C: Moersch's Levels of Teaching Innovation Model (LoTi)

Subject : Re: LoTi Model

Date : Mon, Apr 04, 2011 12:30 AM CDT
From : **Chris Moersch <chris@loticonnection.com>**
To : Jacinth Coultman <jcoul001@waldenu.edu>

Jacinth,

You have my permission to use the LoTi Framework and companion research in your dissertation proposal. We just asked that you cite your sources.

If you need to collect data via a customized Questionnaire, please contact our Director of School Outreach, Fred Saunders, at fred@loticonnection.com

Chris
On Sat, Apr 2, 2011 at 3:52 PM, Jacinth Coultman <jcoul001@waldenu.edu> wrote:

Mr. Moersch,
My name is Jacinth Coultman and I am a doctoral candidate in Educational Technology at Walden University. This email is a request for permission to use the Levels of Teaching Innovation Model (LoTi) in my proposal and dissertation. My case study covers motivating higher education faculty in technology integration and would use your model as a way of analyzing the stages that the faculty have gone through and where they see themselves as technology integrators. I appreciate your consideration of my usage of this tool and look forward to a favorable reply.

Thanking you in advance,

Jacinth Coultman
Doctoral Candidate - Educational Technology
Walden University
jcoul001@waldenu.edu

The LoTi Framework for Technology Integration and Innovation

Level	Pedagogical Emphasis	Instructional Focus
Level 0 – Nonuse	Teacher-centered	No instructional focus or direct interaction between students and teacher. Students are involved in independent reading, study or self-paced tutorial.
Level 1 – Awareness	Teacher-centered	Instruction focus supports the lecture/discussion model of teaching. Teacher focus and student learning focuses on lower cognitive skill development (knowledge and comprehension).
Level 2 – Exploration	Teacher-centered	Instructional focus emphasizes content understanding and supports mastery learning and direct instruction. Teacher questioning and/or student learning promotes lower cognitive skills.
Level 3 – Infusion	Teacher-centered with limited student choices	Instructional focus emphasizes both the content and process skills involving higher order thinking (i.e. application, analysis, and evaluation) and supports inductive thinking models of teaching.
Level 4a- Integration (Mechanical) Level 4b – (Routine)	Student-centered	Instructional focus is an applied learning which supports an inquiry-training model of teaching. Teacher experiences management concerns with the successful integration of 21st Century Skills. Teacher has successfully integrated 21st Century Skills and Themes.
Level 5 – Expansion	Student-centered	Instructional focus is an applied learning which supports an inquiry-training model of teaching. Two-way collaboration extending beyond the classroom are employed for student authentic problem-solving and issues reduction.
Level 6 – Refinement	Student-centered	Instructional focus is an applied learning which supports an inquiry-training model of teaching. Teacher is comfortable with successful integration of 21st Century Skills and Themes. Two-way collaboration extending beyond the classroom are employed for student authentic problem-solving and issues reduction. There is no limit to technology availability or use.

Compiled from http://loticonnection.com/21stcenturyframework.html Adopted with permission.

Appendix D: Technology Integration Impact Rubric

Level	Frequency of Use	Source of Direction	Nature of Integration	Purpose of Technology Uses
1 - Minimal Usage	Time to time. Not used every day	Instructor directed	Technology is used as add-ons to other learning activities.	Skill learning (games, calculator, and tutorials) and Efficiency tools (word processing, spreadsheets, presentation software etc.)
2 – Intermediate Usage	Used routinely, nearly every day.	Primarily instructor directed with some student initiation.	Technologies help structure some learning activities.	Same as level 1with the addition of software used to organize information, support problem-solving, and discover concepts. Use Internet search engines and electronic encyclopedias for research.
3 - High Usage	Used every day for some type of activity.	Both instructor and student directed.	Technology used to change the nature of some learning activities. Used seamlessly in many activities.	Same as levels 1 and 2 with the addition of technology tools used to organize and analyze data. Presentation and communication tools are used to communicate with those inside and outside of the college.
4 - Maximum Usage	Used as a routine part of many daily activities.	Primarily student directed with the instructor providing the necessary support as well as the introducing new technology resources.	Technology used seamlessly with all activities. Both students and instructors rely on technology to assist in teaching and learning.	All uses of levels 1 – 3. Students also select other technologies appropriate for their assignments and/or learning activities.

Source: Roblyer, M.D. (2003). Integrating educational technology into teaching. 3rd edition. Reprinted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

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Dec 12, 2012

PE Ref # 174621

Jacinth Coultman
WALDEN UNIVERSITY
1001 FLEET STREET
BALTIMORE, MD 21202

Dear Jacinth Coultman:

You have our permission to include content from our text, ***INTEGRATING EDUCATIONAL TECHNOLOGY INTO TEACHING, 3rd Ed. by ROBLYER, M. D.,*** in your Proposal/dissertation for your course: Educational Technology , at WALDEN UNIVERSITY.

Content to be included is:

Page 341 Figure A.4-Technology Class Impact Rubric

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Sincerely,

Annie Winston,
Permissions Administrator

Subject : Technology Integration Rubric

Date : Sat, Apr 02, 2011 06:24 PM CDT
From : **"Jacinth Coultman" <jcoul001@waldenu.edu>**
To : mroblyer@westga.edu
Letters : Technology Integration Rubric... (Jacinth Coultman Sat, Apr 02, 2011 06:09 PM CDT)

Dr. Roblyer,

My name is Jacinth Coultman and I am a doctoral candidate in Educational Technology at Walden University. This email is a request for permission to use the Technology Integration Impact Rubric in my proposal and dissertation. My case study covers motivating higher education faculty in technology integration and I would use your rubric as a way of determining the effects of long term professional development workshops on the faculty and their usage of technology. I appreciate your consideration of my usage of this tool and look forward to a favorable reply.

Thanking you in advance,

Jacinth Coultman
Doctoral Candidate - Educational Technology
Walden University
jcoul001@waldenu.edu

Appendix E: Interview Questions

Interview Questions:

The following research questions will be used to assist the researcher in qualitative data on technology integration practices.

1. What motivates you or would motivate you to use technology in your curriculum?
2. What can the administration do to assist you in integrating technology in your classroom?
3. Does your school provide professional development workshops? If so, how many do you attend? If not, has there ever been a request for such workshops?
4. How do the professional development workshops assist you in integrating technology in your classroom?
5. How have these workshops assisted you in your teaching techniques?
6. What do you find most helpful in the workshops? Least helpful?
7. Where do you see yourself in technology usage within the next 3-5 years? Why?
8. What would assist you in using technology more in your classroom?

Appendix F: Observation Protocol

Faculty Name (Code): _____ Date: _____

Department/Course (Code): _____ Years of Teaching: _____

Topic: _____ Duration of Observation: _____

1. What is the learning objective(s) of this lesson?

_____

_____

2. What are the instructional practices used in this lesson?

___Coaching ___Modeling ___Teacher-directed Q and A

___Discussions ___Presentations/Projects ___Testing

___Hands-on experiences ___Student led exercise ___Project/Lab

___Providing opportunities for practice

3. What instructional materials are used in the lesson?

___Computer software ___Overhead/board/flip chart ___Video

___Web sites ___Hand-held technology ___Textbook ___Visual Aids

___Real-world objects ___Student-created materials ___Lab/activity sheet

___Published print materials

4. What is the engagement/integration level of technology used in this lesson?

___Highly engaged (Technology used with all activities by students and faculty).

___Engaged (Technology is used with some activities by students and faculty).

___Intermediate Usage (Technology is used mainly by the faculty).

___Minimum Usage (Technology is used as add-ons to the learning activities).

5. What level of technology integration (LoTi) is demonstrated in this lesson?

___Nonuse (Teacher centered - No instruction focus or interaction between student and faculty).

___Awareness (Teacher centered - Faculty and student focus is based on lower cognitive skills).

___Exploration (Teacher centered – Instructional focus is on content understanding).

___Infusion (Teacher centered with limited student choice of technology usage).

___Integration (Student centered – Faculty has successfully integrated 21st century skills).

___Expansion (Student centered – Collaboration between faculty and student is based on problem solving which expands beyond the classroom).

___Refinement (Student centered – Faculty and students use applied learning. There is no limit to technology availability or use).

Appendix G: Successful Technology Integration Framework

Subject : **RE: Technology Integration Framework**

Date : Mon, May 23, 2011 03:21 PM CDT
From : **Leping Liu <liu@unr.edu>**
To : Jacinth Coultman <jcoul001@waldenu.edu>

Jacinth,

Yes, you are welcome to use the technology integration model for your study. Hope it helps.
Best wishes to your study and career.

Leping Liu, PhD
Professor and Chair
ECHD Department
University of Nevada, Reno.

From: Jacinth Coultman [mailto:jcoul001@waldenu.edu]
Sent: Saturday, May 21, 2011 3:12 PM
To: Leping Liu
Subject: Technology Integration Framework

Dear Dr. Liu,

My name is Jacinth Coultman and I am a doctoral candidate in Educational Technology at Walden University. I would like permission to use the Technology Integration Framework (Integration Model) in my proposal and dissertation. My case study covers motivating higher education faculty in technology integration and would use your model as a conceptual framework within my dissertation.

Thanking you in advance,

Jacinth Coultman
Doctoral Candidate - Educational Technology
Walden University
jcoul001@waldenu.edu