Technology Counts: Assessing Barriers of Integrating Technology into Instruction at a Private University in New Jersey

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Technology Counts: Assessing Barriers to Integrating Technology into Instruction in a Private University in New Jersey

By

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Dissertation

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Seton Hall University 2019
SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

Reverend Father Benjamin Zirra has successfully defended and made the required modifications to the text of the doctoral dissertation for the Ph.D. during this Spring Semester 2019.

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ABSTRACT

Information technology has evolved enormously over the past three decades. Throughout the world, information technology has become important in all aspects of life, including all strata of education from primary through higher education. With the worldwide circulation of technology, it is expected to be utilized effectively in institutions of higher education and to offer many advantages. The perceived benefits of technology in higher education are not limited to instruction and learning. Despite such optimistic views of the benefits of technology in higher education, several problems remain in determining whether such benefits are actually occurring. According to the literature, reasons for limited adoption of technology are commonly referred to as implementation barriers. This qualitative study employed the methodology of narrative inquiry. Interviews were conducted with nine participants selected by purposeful sampling of English professors in Johnson University. Data were analyzed using traditional coding methods of constant comparison and classical content analysis to identify overarching themes. The analytical framework was guided by Ertmer’s (2010) conceptual framework concerning first- and second-order barriers to the integration of technology. Top themes that emerged were: (1) English department professors use applications such as Dropbox, presentation software such as PowerPoint, Windows Movie Maker, OpenOffice.org, and Impress. Other technology includes EasyBib, iStudious, and online collaboration tools such as Google Keep, Red Pen, Go Visually, MindMeister, Slack, In Vision and Appear in tablets, Google Doc, Kahoot, Cliff Notes, clickers, and smart phones. (2) “Level of technology usage” identified the level of the English department professors’ use of technology. (3) Professors addressed “importance and impacts of technology integration.” (4) The “barriers” that English department professors encountered as they integrated technology into instruction were described.
DEDICATION

This dissertation is dedicated to my late father, Edward Zirra Tikolo, and mother, Veronica Masu Mbwalla, who, if I had the chance to tell them I finally completed my doctorate, would have simply said, “Barka Zugwura.” They would expect nothing less from one of their Bazza boys.

I also dedicate this dissertation to my late sister, Marcella Ahmada, and brother, Joseph Edward, who have always been supportive of me and are watching over me to ensure that my destiny is fulfilled.

I love you and cherish you today and always.
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Finally, I could not have done this without the support from the English department that helped me with the interview. A special thank you!
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CHAPTER I

INTRODUCTION

Over the past three decades, information technology has evolved enormously. We see in particular the emergence of many forms of technology, including changes such as the World Wide Web (WWW). Throughout the world, information technology has become important in all aspects of life, including all strata of education from primary through higher education. Today’s students are considered to be digital natives (Lemke, 2002), ones who view technology in general as a vital part of their lives (Spires, Lee, Turner, & Johnson, 2008). At all levels of schooling, computer and phone use can serve as a means to foster interaction and communication among students and instructors (Blythe, Carpenter, & Sweet, 2015; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013).

With the worldwide circulation of technology, it is expected to be utilized effectively in institutions of higher education and to offer many advantages. Information technology serves as a tool that professors can use to help students learn in innovative ways and be productive in the digital world (Fillion, Limayem, Laferriere, & Mantha, 2009; Whitaker, 2012). It can potentially influence the way professors teach and students learn (Kopcha, 2012; Orerovacki, Bubas, & Konecki, 2009; Pitler & Hubbel, 2012; Sandier, 2010; Wankel & Blessinger, 2013; Whitaker, 2012). Technology can provide new ways for professors and students to collaborate, interact, and communicate (Hartshorne & Ajjan, 2009; Shihab, 2008; Wankel & Blessinger, 2013). By being taught using the latest technological developments, students will be better able to compete in a society that is increasingly dominated by technology (Etmer et al., 2013). Students will
also be able to apply technology in conducting research, which will better prepare them to serve as tomorrow’s leaders.

Scholars have talked about another revolution in the form of the digital age as information flow begins to change (Gates, 1999). This means that based on its efficiency, the quality of higher education could be improved through the adoption of technology. If technology is incorporated effectively, it can result in a different way of instruction as well as in greater teamwork and enhanced student performance (Lee, 2006; Matzen, 2007; Pitler, 2012). Incorporating technology successfully into classroom instruction will imply incorporating it into curricula and then applying it during instruction as well (Bates & Sangra, 2013; Sadik, 2008; Whitaker, 2012).

The perceived benefits of technology in higher education are not limited to instruction and learning. When higher education uses technology for access to library information and delivery, for research and development, for teaching and learning, and as a means of communication, institutional missions and goals can be strengthened (Bates & Sangra, 2013; Lawless & Pellegrino, 2007; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013).

Despite such optimistic views of the benefits of technology in higher education, there are several problems in determining whether such benefits are actually occurring. For example, in literature on instructional uses of technology in higher education, a common conclusion is that when professors engage in technology-assisted instruction, students gain lifelong learning skills necessary to succeed in our fast-changing world (Bates & Sangra, 2013; Bernard et al., 2009; Lawless & Pellegrino, 2007; Lee et al., 2011;
Another problem concerns the rate at which colleges and universities are adopting instructional use of technology. Although technologies that aid instruction and learning continue to be popular (Muniandy et al., 2007), and although it is recognized that for the past three decades there has been a move to transform teaching and learning through technology adoption (Bates & Sangra, 2013; Jasper, 2012; Levin & Wadmany, 2008; Rinkel, 2011), instructional use of technology is still not yet as widespread as expected in higher education. Reasons for limited adoption, commonly referred to as implementation barriers (Bingimlas, 2009; Pitler & Hubbel, 2012), are thought to be due to many factors that still constrain use by enthusiastic beginners (Bates, 2013; Betrus, 2012; Gill, 2008; Lei, 2009; Pitler, 2012; Teo, 2011; U.S. Department of Education Office of Educational Technology, 2010; Poly, Mins, Shepherd, & Inan, 2010; Whitaker, 2012). Suggested implementation barriers are varied and may range from the professors’ personal lack of technological skills, inability to recognize the importance of technology in the economy, lack of administrative support, or unavailability of facilities (Griffin, Kilgore, Winn, & Otis-Wilborn, 2008; Pitler & Hubbel, 2012; Putnina, 2009; Surry, 2011). A frequently cited implementation barrier is the lack of collaboration between administrators and instructors (Bates & Sangra, 2013; Blythe, Sweet, & Carpenter, 2015; Donnelly, 2010; Duffield & Moore, 2006; Gerber & Scott, 2007; Matzen & Edmunds, 2007; Muniandy et al., 2007; Pitler & Hubbel, 2012; Surry, 2011; Wan, 2015). Other barriers such as the absence of technological pedagogical content knowledge, theoretical foundation and conceptual framework, teacher training, and resources have also been intimated as roadblocks to incorporating technology in class instruction (Pitler & Hubbel, 2012; So &
Kim, 2009; Surry, 2011). A particular question pertains to the readiness of instructors to use technology effectively. The application and use of information technology demand that one has skills, knowledge, and the willingness to learn the technological skills that are necessary to prepare students with adaptive skills needed to survive and thrive in the digital age (Ash, 2013; Bates & Sangra, 2013; Pitler & Hubbel, 2012; Stratham & Torell, 2010; Van Gaasbeck, 1993), but it is not known whether the faculty of institutions of higher education have such skills, knowledge, and willingness.

**Statement of the Problem**

The research in instructional technology has focused on the impacts of technology-assisted instruction on other areas such as student attitudes, motivation, and learning processes; however, less research exists on the barriers to technology instruction (Hou & Wu, 2011; Lee & Tsaï; Wever et al., 2006). Examining barriers to technology instruction will help to direct ways of implementing strategies for possible solutions. This aspect will be the component that will help to drive the research in this study and has led to the main research question for this study: What are the barriers faculty face as they integrate technology in a higher education setting? In the face of so many possible reasons why instructional use of technology has not become as widely used in higher education as expected, studies are needed to determine what the barriers really are to technology integration (Glassett & Schrum, 2006; Pitler & Hubbel, 2012). In addition, as administrators of higher education are increasingly called upon to enact training programs for faculty to solve the barriers and to improve the use of technology in higher education
(Surry, 2011), it is important to move beyond suggestions about the problem to identify a factual basis on the experiences of higher education faculty regarding implementation barriers. The lack of qualitative research to describe the barriers professors experience as they integrate technology and the extant research on effective integration need to be addressed. The question, then, is: What roadblocks do professors actually encounter as they attempt to integrate technology into instruction?

**Purpose of the Study**

Today, information technology can serve as a means to foster interaction and communication among students and instructors (Blythe, Carpenter, & Sweet, 2015; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013). Although many qualitative studies have focused on information technology (Bates, 2013; Betrus, 2012; Gill, 2008; Lei, 2009; Pitler, 2012; Teo, 2011; U.S. Department of Education Office of Educational Technology, 2010; Poly, Mins, Shepherd, & Inan, 2010; Whitaker, 2012), much of this research has focused on the importance of information technology instead of the barriers to its integration. The results in this study could be used to create a technology integration program at Johnson University that would meet instructors’ needs as well as provide valuable input as to what is required to improve technology integration for all instructors at the institution.

Training programs for faculty are essential to improve the use of technology in higher education successfully (Wankel & Blessinger, 2013). The purpose of this qualitative case study is to explore several patterns of barriers that prevent professors from integrating technology. Specifically, this study will examine responses from faculty at Johnson, a private university in New Jersey, that may or may not be using technology for
instruction. This study will add to our knowledge about the barriers that professors encounter in implementing technology, which may help facilitate implementation. Discovering the barriers to integrating technology will help to address the roadblocks and thereby point to ways for improvement (Bates & Sangra, 2013; Wilson & Washington, 2007). In addition, gathering input from professors regarding what they consider as barriers to integrating technology could help other institutions to alter or develop programs that focus on better technology integration.

**Research Questions**

In an attempt to investigate the roadblocks that professors experience in the use of technology in instruction, four overarching research questions provide the focus for the study. The questions that guided the study are as follows:

R₁: How are professors in the English Department at Johnson University currently using technology?

R₂: What is the level of their usage?

R₃: How does technology integration impact instructional practices that professors in the English department at Johnson University offer to enhance learning?

R₄: What are reasons/barriers that professors of English at Johnson University may not use technology regularly as an integral part of instruction?
Conceptual Framework

The conceptual framework for this study is based on Ertmer’s (1999) article as well as Ertmer et al.’s (2005, 2006, 2008, 2010) following investigations into teachers and technology use. Building on earlier work by Brickner regarding barriers to change in general, Ertmer (2010) elected to apply the concept of first- and second-order barriers and first- and second-order change theory to the integration of technology in the classroom. Fuller and Stiegelbauer established in the original theory that various people react to change differently depending on what it requires of them (Ertmer, 2010). Surface-level, incremental, and behavioral differences are first-order changes and usually require concrete resources like time, money, and materials. Second-order changes need greater personal investment as they challenge an instructor’s core belief system, past experiences, self-image, and identity in the classroom (Marzano, Waters, & McNulty, 2005). Ertmer (2010) further stated that as these barriers differ for individual instructors, caution should be taken not to oversimplify the concept of first- and second-order barriers to change. Individuals maintain different thresholds for frustration (an indication that barriers are at work) and different comfort levels with change; as a result, what one instructor views as a minor obstacle might seem insurmountable to another. In any case, change can be considered as the most important factor in determining how and whether technology is integrated into classroom instruction.

Following Ertmer’s (2010) theory, first-order barriers to technology integration are considered to be extrinsic to instructors and include lack of access to computers and software, insufficient time to plan instruction, and inadequate technical and administrative
support. On the other hand, second-order barriers are intrinsic to instructors and include the beliefs of instructors, beliefs about computers, established classroom practices, and unwillingness to change. Eliminating first-order barriers may require securing additional resources and providing computer-skills training; confronting second-order barriers demands challenging one’s belief systems and the institutionalized routines of one’s practice (Ertmer, 1999). According to Ertmer (1999), first- and second-order barriers can impact one another, but second-order barriers have a more significant bearing on instructors’ integration of technology for instruction. Furthermore, reducing first-order barriers such as access to equipment may serve only to allow the actual second-order barriers to surface for individual instructors (Ertmer, 2010). For example, instructors may identify a technical problem (e.g., how to navigate around a blocked website, inability to get the software running, or having outdated computers), but that may not actually be the real roadblock (e.g., feelings of inadequacy, insufficient professional development, or instructor-centered orientation) to successful integration of technology into the curriculum.

Based on Ertmer’s (1999) conceptual framework concerning first- and second-order barriers to integration of technology, the idea of third-order barriers adds to our understanding of this topic. A third-order barrier concerns how an instructor negotiates physical resources and pedagogical beliefs within the environment of the institution. Professors may have all the tools they need and the attitude necessary to execute technology-enhanced teaching but may be affected by a school climate in which colleagues disparage technology in their subject area (Hew & Brush, 2008). Various
aspects such as leadership philosophy, site structure and management, political or economic climate, and interpersonal relationships constitute third-order barriers, which thus, influence an instructor’s successful technology integration.

This conceptual framework of Ertmer (1999) on first- and second-order barriers has influenced numerous researchers and has provided a strong foundation for analyzing why instructors fail to integrate technology into instruction successfully (Brush, Glazewski, & Hew, 2008; Chen, 2008; Hew & Brush, 2008; Hinson et al., 2006; Lowther et al., 2008; Schoepp, 2004; Wachira & Keengwe, 2010; Wang & Reeves, 2003). Ertmer’s (1999) identification of these barriers can frame a structure that will guide my investigation into barriers to technology integration into classroom instruction at Johnson University.

**Definition of Terms**

*Educational technology:* Educational technology is a more specific domain of instructional technology. It is a mixture of the processes and tools such as Video Data Projector, SMART Board, Visualizer/Document Camera, Student Response Systems, Classroom Performance System, Classroom Response System, Blogs, Podcasting/Recording of Audio Files, or Video, Pictures, and Slideshows involved in addressing educational needs and problems. The emphasis is on applying the most current tools: Second life, computers, and their related technologies (Brush, Glazewski, & Hew, 2008; Robyler & Edwards, 2000).

*Integrating technology:* The accepted definition of integrating technology is the inclusion of technology and practices in daily classroom instruction and learning (NCES, 2005).
Professors’ level of technology use: Quantifies the different steps of professors as they go through information technology integration. It compares those that utilize technology on a regular basis verse those that do not (Schibeci et al., 2008).

First-order barriers: Logistical obstacles that are extrinsic to an instructor that may constrain integration such as lack of adequate access, time, training, and technical support (Ertmer, 2010).

Second-order barriers: Barriers that are intrinsic to the professor such as pedagogical beliefs, technology beliefs, and willingness to change; these personal beliefs may hinder the implementation of technology integration.

Third-order barriers: Leadership philosophy, site structure and management, political or economic climate, and interpersonal relationships that hinder technology integration. Instructional technology: Devices, computers, and software that are used specifically in the instructional context whether in a classroom or outside the classroom in fulfillment of the class work, or in a distance education application (Brush, Glazewski, & Hew, 2008). Technology: Technology encompasses the full variety of equipment and software applications, including operating systems, networking software, computing software, and resources such as networks created with computers (such as desktop, laptop, and types of hardware/software) as well as other computer-related peripheral equipment (NCES, 2005). Web resources: Web resources are resources that link to applications, web sites, and other resources available using the Internet (Krunic, Ruzic-Dimitrijevic,
Petrovic, & Farkas, 2006). *Web site:* A web site is a collection of Internet pages with information and links to applications, videos, images, data, sound, and other resources (Bates & Sangra, 2013).
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The literature review will provide a critical review of information technology with an emphasis on levels of usage and the barriers to information technology integration in higher institutions. Relevant works on major variables and concepts will be discussed. The first section describes the importance of integrating information technology into higher education in the 21st century. The second section reviews existing empirical research about information technology in higher education. The third section discusses professors and their attitudes toward information technology that potentially impact technology integration into a classroom, including where the literature both converges and diverges.

The fourth section discusses classroom integration of information technology, level of technology usage, and barriers to technology integration. The fifth section describes information technology integration conditions. The sixth section is a discussion of new generations of professors and information technology, and finally, implications and conclusions.

Information Technology (IT) in 21st-Century Education

Students can easily learn through the use of digital devices integrated into instruction (Chen et al., 2010; Hayashi & Baranauskas, 2013). Through information technology (IT) professors can create, store, manage, and process information. A growing
body of literature has attested to the importance of IT in higher education (Graham & Robison, 2007; Garthwait & Pratt, 2008; Lee & Winzenried, 2009; Luu & Freeman, 2011). The review of the literature reveals that the concept of technology integration has some troubling issues in higher education. Of major concern is the absence of a widely accepted operational definition of “technology integration” (Bebell, Russell, & O’Dwyer, 2004). When a technology device is adopted as a tool for instruction, it is believed that technology integration has occurred. The professional literature, the media, professors, and students themselves seem to agree that information technology is a critical component of higher education instruction (Hechter & Vermette, 2012b; Quillen, 2013). By using computers, students learn basic technical skills to research topics, write reports, get feedback from the professors, and deliver their work electronically (Hakverdi-Can & Dana, 2012; Hechter & Vermette, 2012a). By e-learning and course delivery through computers, institutions deliver classes to students off campus. Higher education can benefit tremendously from the present age technology such as online learning, use of laptops, and open source programs.

Higher education scholars’ analyses have indicated that the use of technologies for teaching and learning has led to major academic achievement among the prevailing higher education systems (Donnelly, 2010; Lee & Winzenried, 2009; Quillen, 2013).

According to Spires, Lee, Turner, and Johnson (2008), students view technology as a vital part of their lives. Penske (2005) observed that for instructors to be effective in teaching in the digital age, professors must learn to teach in ways that meet the learning needs of digital age college students. Today’s students have been referred to as digital natives.
(Holley & Oliver, 2010; Lemke, 2002). Nevertheless, the value of IT in learning/academic institutions is still under debate. Seemingly, roadblocks exist that tremendously hamper the effective implementation of technology into instruction (Hechter & Vermtte, 2012b). In conclusion, some scholars have maintained that to integrate information technology effectively, institutions must adopt it into their plans, missions, and goals (Katz & Rudy, 2006).

The review of the literature on information technology integration revealed considerable agreement that the applications and use of information technology demand that one has skills, knowledge, and the willingness (Hayashi et al., 2012a; Surry, 2011). The review of the literature on information technology revealed considerable agreement about its usefulness. Scholars have agreed that integrating technology into class instruction is becoming inevitable, but the “how” to incorporate it seems to be the main area that educators and researchers must study (Baytak & Akbiyik, 2010). Exploring professors’ perceptions of barriers to technology integration will not only enhance its adoption but can help in developing better policies for future integration of technology. The literature review for this research study will further explore areas that provide a framework for understanding the issues related to the research study phenomenon (faculty barriers to integrating technology into classroom instruction). Based on the review of the literature, some scholars have recommended that for effective integration of technology, it is essential to understand the way that the entire institution works (Baranauskas, 2009b; Hayashi et al., 2012a; Surry, 2011).
Another area of concern is the link between information technology (IT) and academic success. As information technology becomes increasingly significant in routine life and in the educational system, the demand of educational institutions to adopt it is therefore reasonable. Scholars have argued that through IT, professors can teach the skills and knowledge that students of the 21st century need (Doneelly, 2010; Pensky, 2010; Zhao, 2007). By so doing, they now bridge the existing technology gap. This restructuring needs effective implementation of technologies into institutions so that learners can gain knowledge of specific subject areas. This implementation will result in significantly enhanced learning and professionalism (Baytak & Akbiyik 2010; Surry, 2011).

The higher education literature has indicated that globally, many governments heavily invest in IT to improve teaching and learning in institutions. In the United States, K-12 schools and higher education expenditures amounted to $6 billion and $4.7 billion, respectively, in 2009. Reports from a new IT spending guide from IDC Government Insights have indicated that U.S. higher education institutions were expected to spend about $6.6 billion on IT in 2015 (McGee, 2015). According to some scholars, the New Zealand government spends about $410 million annually on IT in higher education institutions (Johnson, Calvert, & Raggert, 2009). In spite of such huge investments in information technology to enhance education in numerous countries, there has not been much proof of IT integration in instruction. For over the past three decades, educational researchers have investigated the continued minimal levels of technology integration despite increasing professional development opportunities, resource allocation, computer access, and Internet broadband connectivity (Gray, Thomas, & Lewis, 2010; Technology
Counts, 2009; Wells & Lewis, 2006). The study that Editorial Projects in Education (EPE) conducted recorded various states’ technology levels based on three different areas: access, use, and capacity to use technology; roughly 70% of the states had yet to integrate technology effectively (Swanson, 2006).

In researching articles for this study, it appeared that research studies pertaining directly to the topic were limited. However, numerous studies have supported higher institute faculties’ adoption of information technology (Donnelly, 2010; Straub, Sugar, & Zhao, 2007; Surry, 2011). Technology plays a significant role in the workforce and daily life in the 21st century (Jasper, 2012; Surry, 2011).

Representing another point of view, scholars have maintained that professors’ effective use of information technology may facilitate student learning (Collopy & Arnold, 2009; Donnelly, 2010; Keengwe, 2007; West et al., 2007; Zhao et al., 2007; Surry, 2011). Furthermore, some researchers have identified that understanding professors’ barriers to information technology adoption can provide insight on how to (a) prepare professional development courses, (b) integrate technology, and (e) enhance support for instruction (Donnell, 2010; Kaleta et al., 2007; Zhao, 2007). Also suggested was that students’ learning could be enhanced when information technology is effectively integrated into higher education (Donnelly, 2010; Groof & Mouza, 2008; Holley & Oliver, 2010).

A review of references to the key word technology within the ERIC database indicated a growing increase in attention to this topic. Over the past three decades, the
number of publications in the ERIC database that included technology as a key word has risen steadily to 58,693,074 in January 2013, compared to only 43,747 in January 2003. The key terms used to search the databases were: technology, learning, technology adoption barriers, and professors’ use of information technology. This study dwells on the literature that is significant based on its relevance to barriers to information technology adoption, methods, or theoretical foundation; it does not attempt to be an exhaustive review of the literature.

A review of the literature has indicated that information technology integration into classrooms dates back to the 1960s (Suppes & Searle, 1971). Various models and standards have been used to promote and advance the progress of computer integration into classrooms (Casey & Rakes, 2002; CDW, 2004; Donnelly, 2010; Fillion et al., 2009; Li, 2007). Researchers have maintained that information technology integration into the classroom affects globalization of education and enhances the quality of education (Bates & Sangra, 2013; Brown, 2006; Li, 2007). This review of the literature on the barriers to information technology adoption revealed a considerable agreement about its importance in education. Researchers have stated that information technology integration and other digital literacy are necessary because of the advancements of the digital age in which every organization uses technology and demands for implementation (Bates & Sangra, 2013; Donnelly, 2010; Fillion et al., 2009; Quillen, 2013). Some scholars have observed that today’s students are immersed in a world of technology and that their use of it mystifies older generations (Bates & Sangra, 2013; Donnelly, 2010). Recently there emerged yet another development in information technology: MOOC (massive open
online courses), which are a new step in education and learning (Bouchard, 2011). A learner is self-motivated; there is a huge difference between learning informally and formally, both away from an educational institution and within one. Although some institutions do not award certificates, skills for the workplace can easily be learned through this type of education. Such developments have emerged in response to the 21st-century technological changes (Bates & Sangra, 2013; Weller, 2011). Through the online studies, researchers have begun to notice new roles emerging for educators such as those of guardian, the student, facilitator, the supporter, coach, moderator, lecturer, and “sharer of resources” (Bates & Sangra, 2013; Downes, 2010; Siemens, 2008).

In addition, despite social networking such as Facebook, Twitter, Foursquare, Instagram, and MySpace, we do have places that are educational, like Classroom 2.0. Based on their review of literature, some scholars have believed that such networks foster interactions and collaboration (Bates & Sangra, 2013; Besnoy & Clarke, 2010; O’Brien et al., 2005). Furthermore, some scholars also observed that organizational leaders of higher institutions are constantly under pressure to force the faculty to integrate technology to foster 21st-century literacy skills (Donnelly, 2010; Fillion et al., 2009; Sitzmann et al., 2006). Although it is hard to ascertain the number of institutions of higher education that use e-learning, about 90% of those in the United States use it (Allen & Seaman, 2007a, 2007b). A number of researchers have been of the opinion that when technology is properly integrated, instructors and students can engage in meaningful study and use the knowledge to improve their work (Besnoy & Clarke, 2010; Donnelly, 2010; Garrison & Vaughn, 2008; Sitzmann et al., 2006). Studies by some researchers have revealed that professors tend to be skeptical about integrating technology prior to receiving proof of its
efficiency (Evans & Henriches, 2008; Graham, 2006; Ives, McWhaw, & De Simone, 2005; Reid, 2007; Sife, Lwoga, & Sanga, 2007; Sitzmann et al., 2006). Further research has indicated that this reluctance could be due to overload, resistance, and fear of loss of autonomy, control, and position (Allen & Seaman, 2007a; Graham & Robinson, 2007; Nicole & Lou, 2008; Papastergiou, 2006; Reid, 2007). Other discussions have argued that based on the fact that the 21st-century students expect assignments to be done with the aid of information technology, the educational system must continue to change. These students, researchers observed, prefer to show their knowledge through the use of technology (Besnoy & Clarke, 2010). Based on their review of the literature, some scholars concluded that because today’s students have evolved, educational tools such as information technology have evolved; curriculum must also evolve (Bates & Sangra, 2013; Donnelly, 2010; Kirschner & Erkens, 2006; Zhao, 2007).

**Information Technology Integration in Higher Institutions**

Based on the literature review, the concept of technology integration involves some troubling issues. The literature has offered various definitions: instructors’ computer use during class (e.g., students searching the Internet, gathering of data, and interpretations; Cuban, Kirkpatrick, & Peck, 2001); professors’ out-of-class use of computers (Hennessy, Ruthven, & Brindley, 2005); and professors’ computer use to expand the thinking skills of students (Bates & Sangra, 2013; Wankel & Blessinger, 2013). Although a clear definition is lacking, commonly held elements exist across the various present deliberations about technology adoption in higher education. One of these elements would be the use of computers for instruction. This review views
technology adoption as the use of computer devices such as desktops, laptops, software, handheld devices, or the Internet in higher education instruction (Lareki et al., 2010; Wankel & Blessinger, 2013).

The higher education literature is divided about the solution for the barriers to information technology integration. Although some researchers revealed that for information technology integration to be effective, the need for change must be obvious to those involved and demands collaboration (Bates & Sangra, 2013; Beastall & Walker, 2006; Egan & Mavrotheris, 2007; Olmstead & Ceppos, 2007; Reid, 2007). Other scholars have maintained that changes in any human organization can be difficult and always have their challenges. Higgs and Rowland (2005) in their analysis revealed that change in most organizations has a 70 percent rate of failure. A number of researchers have observed that when there is no clear vision or clearly defined need for information technology integration, barriers may be created through resistance (Bates & Sangra, 2013; Baily & Card, 2009; Garrison & Vaughn, 2008; Lareki et al., 2010; Olmstead & Ceppos, 2007). Other discussions have revealed that many new changes fail to work because not enough has been learned about the organizational culture (Donnelly, 2010; Dziuban et al., 2007; Stensaker et al., 2007; Fernandez & Rainey, 2006). Some researchers are of the opinion that the professors’ readiness for information technology adoption and training in the best practices regarding integration are vital to their success (Donnelly, 2010; Garrison & Vaughn, 2008; Holly & Oliver, 2010; Kaleta et al., 2007).

Furthermore, according to Morton (1996), information technology integration means more than viewing the computer as a “tool.” This author noted that it requires
training, unlike Blackboard or the overhead, which do not require much training. Scholars have also agreed that information technology integration, when used effectively, can support curriculum objectives and help students learn more effectively (Bates & Sangra, 2013; Donnelly, 2010; Garrison & Vaughn, 2008; Wankel & Blessinger, 2013). However, these authors stressed that this integration should be a daily routine and not something done in isolation. Some researchers have suggested that the objective of the use of information technology is to engage students in meaningful learning; it should enrich and enable students to exhibit their knowledge in an improved and creative method (Donnelly, 2010; Wankel & Blessinger, 2013).

**Professors and Information Technology**

The review of the literature on professors and information technology has revealed both disagreements and agreements about the advantages of its implementation. Whereas some professors are concerned about the slow pace of change in higher education, studies have indicated that some of these professors are unaware of the efficacy of IT integration (Holly & Oliver, 2010). Representing another point of view, some researchers stated that a good number of professors are thrilled by the different ways information technology is being used in post-secondary education (Besnoy & Clarke, 2010; Donnelly, 2010). These researchers observed that professors now have at their disposal e-textbooks, digital library collections, and data monitoring to track student performance. The use of technology can be interesting and also improve professors’ methods of instruction (Bates & Sangra, 2013; Collopy & Arnold, 2009; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013). Bybee and Starkweather (2006) were of the opinion
that quality teaching will rely heavily on advancements in technology proficiency. Other scholars noted that despite its advantages, some IT tends to frustrate professors (Bates & Poole, 2003; Evans & Henriches, 2008). Some researchers maintained that IT is today an essential part of lecturing and learning in various institutions: “Learning has become fundamentally a social process through which learner, professor, and others communicate” (Garrison, Evans, & Henriches, 2008, p.28). Based on their review of the literature, some scholars concluded that for effectiveness, faculty should be provided with basic educational resources (Garrison & Vaughn, 2008; Graham & Robinson, 2007; Holly & Oliver, 2010). Furthermore, these authors noted that the way to use specific software does not just mean having enough resources; proper use of it to make a considerable difference in student achievement is vital (Wankel & Blessinger, 2013). In conclusion, some researchers have observed with regret that professors use information technology for instruction minimally despite an increase in equipment, training, and access (Galloway, 2007; Garrison & Vaughn, 2008; Wankel & Blessinger, 2013).

**Professors’ Attitudes toward Technology**

Given a variety of information technology advantages in instruction, will every professor embrace information technology? The review of the literature has indicated several barriers. Surry’s (2011) analysis maintained that when instructors have positive attitudes toward information technology such as computers, these attitudes are positively correlated with experiences with computer technology adoption. As professors become familiar with technology, anxieties and fears decrease; these teachers then begin to handle computers with more confidence. With such confidence grows the zeal that can
influence their integration of information technology into instruction. Thus, positive attitudes of professors toward computers would be essential for the meaningful adoption of information technology (Wankel & Blessinger, 2013).

Historically, researchers have conducted studies to examine the efficiency of information technology integration into class instruction to discover its effects on the quality of teaching. In a particular study, computers were used to give instruction to individual students in the field of mathematics. The conclusion from the study is that computer instruction could be a practical option to underqualified instructors in mathematics (Atkinson & Suppes, 1968; Suppes & Morningstar, 1969). One study indicated that computers could influence the way students are taught and learn (Wankel & Blessinger, 2013). Based on their research (Papert et al., 1979) at the Massachusetts Institute of Technology (MIT), students who used LOTO learned mathematical concepts as they analyzed and solved authentic problems related to physics. Subsequently, these authors maintained that computers could revolutionize learning to the point that traditional schools would no longer be necessary. This opinion that computers can be used to construct knowledge in a student-centered environment marked a revolutionary shift in the expectations for computers in education. Computers are no longer considered as a means to transmit the prescribed curriculum in schools; computers have now turned into tools for educational reform meant to change how educators teach (Donnelly, 2010; Garrison & Vaughn, 2008).

With the global proliferation of computers and public access to the Internet
in the 1990s began the demand that institutions explicitly teach students how to use technology. But how can this be possible if the instructors have barriers? This digital divide tends to alienate the rural from the urban students, as well as younger from older citizens (Garrison & Vaughn, 2008; Tomei, 2005).

The United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2008) expanded on the issue of equity by presenting a global view of the role of technology in education. UNESCO believes that technology literacy can foster knowledge building and knowledge sharing. A knowledge-based society has citizens who are lifelong learners and innovate by creating and sharing knowledge. In contrast to manufacturing based or information-based economies that create jobs that can be outsourced, a knowledge-based economy achieves sustainable economic growth and prosperity. At an international level, expectations for information technology in higher education heighten as technology literacy becomes linked to the nation’s stability and long-term survival (Tomei, 2005).

Other discussions, however, identified that in the past three decades, numerous expectations have emerged for information technology integration into higher education. Information technology is today seen as a tool that enhances existing instructional methods and encourages the radical transformation of schools (Besnoy & Clarke, 2010; Donnelly, 2010; Garrison & Vaughn, 2008; Holly & Oliver, 2010). Lately, information technology has been viewed as that which is vital to the economic survival of any nation globally. As expectations for information technology adoptions increase, the pressure intensifies for institutions to integrate technology into education effectively (Donnelly,
Levels of Technology Adoption and Adaptation

Researchers have expressed various opinions on the impact of information technology adoption. Although for a bit longer period, Sandholtz et al. (1997) carried out research for a period of 13 years about the effects of technology integration into classroom instruction. Five classrooms participated in the project. Students and teachers were given two computers, one for private use and one for school use. The researchers noticed obvious changes as teachers moved from their traditional teaching practices to using technology to provide a constructivist learning environment. The Apple Classrooms of Tomorrow (ACOT) study used qualitative methods to track the patterns of change in the participating teachers. Analyzing 10 years of data, the researchers reported on over 20,000 episodes of data collected from 32 elementary and secondary teachers via audiotape journals, weekly reports, and correspondence sent between ACOT sites (Sandholtz et al., 1997). Using a grounded theory methodology, the researchers developed the “instructional evolution” conceptual framework: (a) entry, (b) adoption, (c) adaptation, (d) appropriation, and (e) invention. Teachers felt frustration and doubt as they dealt with technical and classroom management issues with the new technology in their classroom at the beginning. They adjusted their physical space and classroom management rules to accommodate the abundant, bulky equipment. After they progressed to the second stage of adoption, focus now shifted to blending technology into their daily instruction. During this stage, teachers assigned either drill-and-practice programs or lessons to assist students on computer use. In the third stage of adaptation, teachers predominantly used technology
to increase productivity of teaching and learning. Teachers discovered that computer-assisted instruction (CAI) packages helped students learn material faster than the traditional methods. Researchers noted that in the adoption phase, student use of technology expanded from word processing to databases and some graphic programs. In these first three stages, teachers moved from coping with the new equipment to adapting it to fit their existing teaching style. During the final two stages, teachers’ proficiency with the technology improved, and their use of technology broadened. The fourth stage, appropriation, was marked by a shift in teachers’ attitudes toward technology. At this stage, teachers began to use technology effortlessly. Noticeable changes in teaching practices appeared in the fifth stage of invention. In this final phase, teachers experimented with team teaching, interdisciplinary projects, and making student work public. ACOT students worked collaboratively and used inquiry and problem-solving skills. When teachers reached the fifth stage of invention, teaching transformed from traditional lecture, recitation, and seatwork to student-centered construction of knowledge (Sandholtz et al., 1997).

Various researchers have conducted studies that described teachers’ different steps as they go through information technology integration (Kissane, 2003; Schibeci et al., 2008). The models summarized the progression of teachers’ use of information technology, beginning with the initial stage of simply learning how to turn on the computer and master basic operations. While the models can range from four to six stages, the final stage typically describes the pinnacle of information technology use as the transformation of teaching and learning into a constructivist process. The models
illustrate two levels of use of technology. The initial stages of the models are reminiscent of the early Stanford University research (Atkinson & Suppes, 1968) that focused on technology as a tool to strengthen teacher-centered models of instruction. When teachers transitioned to the final stages, their teaching approaches shifted to the student-centered model that MIT researchers (Papert et al., 1979) envisioned. The current study used the ACOT model to guide the examination of teacher and student use of technology. The term “lower level” is used to describe uses that fall into the initial three stages of entry, adoption, and adaptation. The term “higher level” characterizes uses in the final two stages of appropriation and invention. In classrooms that did not participate in the ACOT project, researchers discovered that most teachers were not reaching higher level uses when technology was brought into their schools.

**Classroom Integration of Information Technology in the English Department**

The dynamics of the marketplace today require a focus on new approaches of instruction in higher education. For students to be successful, creative solutions and innovation must be present. The method of instruction that made students successful yesterday is no longer what will make them successful tomorrow in the world of technology. The English department in Johnson is successfully working toward that end with innovations such as the integration of technology.

The English department fosters analytical reading, lucid writing, and stimulating thought about the nature of human experience. Being potential servant leaders, students need to be articulate, think critically and analytically, and be trained in humane thought and letters to be at home with the historical and philosophical contexts of today’s world.
English department students of Johnson have global rewards from studying literature; such degrees in English-language literature provide thorough training in skills needed in the contemporary job market.

English has long been a great and successful higher education interdisciplinary with a mix of formal analysis, ethics, anthropology, politics, philosophy, theology, literary history, language study, and textual study. This versatility explains the reason that in academics, the crossroads of Humanities is English. Skills learned in the English department such as reading, writing, speaking, ethical understanding, and critical interpretation are vital in the 21st century. It is obvious that the sustained critical and interpretive readings taught in the English department are essential in most professions (http://english.fas.harvard.edu/why-english/).

A variety of questions concerning information technology and higher education remains unanswered. What is the effect of information technology integration in the English department on higher education? As computer usage becomes part of daily life, the shift to the demands of technology integration into classroom instruction increases (Calvin, 2012; Leftwich et al., 2010). The focus is on how information technology could change teaching and learning by using levels of instructor and student use of information technology as indicators of change. A 12-year study by the U.S. Department of Education indicated that students often perform better with online learning than with traditional classroom education. Consequently, universities like MIT are now putting much of their undergraduate course materials online for free. Online learning offers anyone with an Internet connection access to a cheap education (Calvin, 2012).
Improvements in text-to-speech technology provide a cost-effective and efficient way to offer English Language Learners the individual support they need to be successful in their studies. Multipurpose text-to-speech software can also be installed on computers. In addition, programs like Kurzweil 3000 from Kurzweil Educational Systems, Inc. allow students to read and listen to digital or scanned printed material simultaneously. This avenue can provide many online reference and study skills tools to improve students’ reading, writing, and comprehension (www.kurzweiledu.com).

**Barriers to Technology Integration**

Information technology integration in higher education has been a popular research topic for the past three decades. A variety of questions concerning barriers to technology integration remains unanswered. Although many researchers have attempted to identify key barriers that hinder effective technology adoption attempts, diverse factors continue to be identified. According to scholars, such significant factors include computer access (Norris, Sullivan, Poirot, & Soloway, 2003), curriculum (Butzin, 1992; NCES, 2000), professors’ beliefs (Ertmer, 2005; Wozney, Venkatesh, & Abrami, 2006), instructors’ knowledge about technology (Pierson, 2001), administrators’ support (Sandholtz & Reilly, 2004), and social and organizational aspects (Surry, 2011).

Although many researchers have attempted to provide concise reasons for barriers to technology integration, in general, a variety of factors such as sociocultural conditions, lack of infrastructure, and geographical positions can impede access to information technology (U.N., 2010). According to some studies, the key enabler to access to
information technology is finance. Nevertheless, it has been observed that not so many have access to the funding needed (Hassanin, 2009; World Bank, 2008). Based on his review of the literature, Swain (2006) concluded that when finance is available, institutions can invest in information technology. Robinson and Sebba (2009) noted that a restriction on Internet access could serve as a significant barrier to information technology adoption. Certain institutions’ restrictions on YouTube have also been considered to be a barrier.

Researchers have also agreed that curriculum serves as a barrier to information technology integration, and Ogwu (2010) maintained that curriculum mandates and the huge sizes of classrooms are other roadblocks to technology integration. Anthony and Clark (2011) revealed that when too heavy a workload is placed on instructors, adopting information technology could be impacted. Furthermore, Yaratan and Kural (2010) noted that if an instructor perceives that information technology obstructs curriculum mandates, this perception can serve as a barrier to adopting information technology. Anthony and Clark were of the opinion that administrators must create a clear vision for information technology to be integrated effectively. Other scholarly discussions have raised issues related to teachers’ ability to integrate curriculum objectives and software applications (Varma, Husic, & Linn, 2008).

Other empirical studies on the barriers to information technology discussed instructors’ beliefs about the use of information technology. According to Palak and Walls’s study (2009), instructors’ beliefs have an effect on their instruction. Some researchers viewed the need for professional development to be focused on student
centered instruction rather than training the staff (Palak & Walls, 2009). In addition, Inan and Lowther (2009) observed that instructors’ beliefs influence their willingness to adopt information technology. These authors noted that instructors’ skills and readiness impact the successful adoption of information technology and reported that their level of ability related to information technology proficiency impacted their beliefs about IT adoption. Furthermore, instructors who are determined to use information technology in their classrooms are more positive towards technology adoption (Inan & Lowther, 2009). In the same way, instructors who had pleasant experiences while integrating information technology were more optimistic regarding the use of information technology (Glasset & Shrum, 2009). According to Inan and Lowther (2009), the institution’s feelings about information technology and the level of support impacts instructors’ integration of IT. It is vital for administrators of the 21st century to think of better ways to incorporate information technology successfully.

A related issue to the barriers to information technology is teachers’ level of self-efficacy. Niederhauser and Perkman (2008) observed that instructors’ personalities were considered a significant roadblock to information technology integration into classroom instruction. Based on their review of the literature, Lin and Lu (2010) concluded that when instructors have high levels of self-efficacy, they are more committed to dedicating time to information technology adoption. Inan and Lowther (2010) further observed that instructors who felt ready and confident had a greater impact on the adoption of information technology.

A number of researchers from the review of the literature (Inan & Lowther, 2010; Niederhauser & Perkmen, 2008) supported the need for professional development. Some
researchers have maintained that instructors who received professional development related to the integration of information technology were more effective in its use. According to these researchers’ survey on the staff that had professional development, the instructors exhibited a higher rate of use as their levels of self-efficacy regarding technology usage increased. In addition, a follow-up study 6 years later found that teachers’ self-efficacy levels had remained consistent as indicated by the result of the original study (Niederhauser & Perkman, 2008).

Other empirical studies about barriers to information technology revealed the need for professional skills. Ogwu’s analysis (2010) indicated that professors who did not make much use of information technology in classrooms lacked the skills needed. Furthermore, Lin and Lu (2010) revealed the need for professional development, a review of the content of the curriculum, and training on the use of technological devices.

On the contrary, Almekhlafi and Almeqdadi’s (2010) quantitative analysis revealed that instructors felt capable using information technology, but they lacked the skills needed for effective integration into their classrooms. Furthermore, some researchers’ suggestions on eliminating the barriers to technology integration encouraged the need for professional development. Ogwu (2010), for example, strongly advocated for professional development by employing information technology specialists to assist with technology adoption. Another study by Inan and Lowther (2010) suggested the need for institutions to employ information technology specialists to assist in the process of integration. Their
subsequent studies indicated that lack of support is a major roadblock to information technology integration, and they recommended action (Inan & Lowther, 2012).

Certainly, barriers are inevitable, unpredictable, and ever-adapting as new innovations are introduced into the classroom setting. Experienced technology-using professors will ultimately face some sort of barriers in the process of integration. However, by outlining these first-, second-, and third-order barriers, Department of Education and school administrators can develop responses to or strategies for minimizing their impact on professors’ adoption of these tools for instruction. Based on the fact that the three types of barriers have a symbiotic relationship, professors and administrators must figure out ways to address each type as it occurs. Therefore, addressing the problem of professors’ technology integration requires a compound view of the barriers and a compound approach to reducing them.

Furthermore, some scholars have applied Ertmer’s (1999) barrier research to generational differences in teachers. Consequently, part of this conceptual framework warranted additional exploration into Prensky’s (2010a, b) digital native/immigrant paradigm. Ertmer’s original study (1999)—and this researcher’s modification to her framework—guided this investigation into how barriers manifest between different generations of professors. The goal is to provide updated insight into and recommendations for technology integration in today’s classrooms.

**Technology Integration Conditions**

Descriptions of conditions designed to promote information technology integration
are easily found in higher education literature. For example, Prensky (2010) proposed that
a need exists in the 21st century for new curricula, organization, architecture, teaching,
student assessments, parental connections, administration procedures, and other essentials
that must be changed. It is vital, therefore, to have research that offers strategies or
proposes conditions to support professors’ use of technology for student learning (Bates
& Sangra, 2013; Groff & Mouza, 2008; Lowther et al., 2008). Some researchers also did
a study that discussed enabler, that administrative support, access to hardware, and
selfefficacy can have an inverse relationship to barriers. Although such researchers agreed
that there is no exact correlation between the two, they hypothesized that a decrease in
barriers and increase in enablers would lead to greater technology integration. It was also
their belief that too much emphasis has been placed on barriers and too little research on
factors that can enable professors to overcome them (Ertmer, Ottenbreit-Leftwich, &
York, 2006). It is my hope to include this component in this study. As can be seen in the
research pool on barriers, documentation of conditions is broad and vast with varied
recommendations for information technology integration. Bebell et al. (2004), in their
meta-analysis of 48 studies on barriers, linked research-based strategies with each of the
core barriers. They did this by dividing the studies into five different sections: (a) shared
vision and plan for technology adoption, (b) remedy for the shortage of resources, (c)
attitudes and beliefs change, (d) professional development, and (e) evaluations. According
to Hew and Brush (2007), these five components covered the gamut of first- and second
order barriers, understanding as well that strategizing is complex and site embedded. They
recommended examination of the effectiveness and possibility of these strategies to see
how they could be applied. Groff and Mouza (2008), after the review of literature,
identified six different factors that influenced implementation in technology: (a) legislative, (b) district/school-level, (c) professor associated, (d) technology-enhanced project, (e) students, and (f) factors inherent in technology itself. According to their evaluation, other potential elements exist—third-order barriers that are not within a site or district staff’s control—that impact conditions for technology integration. Both Groff and Mouza’s (2008) and Hew and Brush’s (2007) views about barriers indicated what we already knew about them: Solutions to this problem cannot be reduced to mere resources or mindsets. There is a need for a holistic approach that considers the environment and conditions professors encounter in their lives for solutions. The International Society of Technology in Education (ISTE) has been a strong advocate for information technology integration into instruction.

Table 1 categorizes 14 essential conditions to integrate information technology effectively that the ISTE put forth according to the barriers to technology integration. Table 1 also indicates that the first-, second-, and third-order conditions progressively increase numerically (from three to five to six items in each category) concerning conditions for technology integration. It is the belief of the ISTE that a comprehensive approach is essential for the resolution of barriers to technology integration.
Table 1

*Necessary Conditions to Leverage Technology for Learning Effectively (ISTE, 2008)*

<table>
<thead>
<tr>
<th>First-order Barriers (Equipment/Resources)</th>
<th>Second-order Barriers (Skills/knowledge; Beliefs/Attitudes)</th>
<th>Third-order Barriers (Structure/Organization; School Culture/Climate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equitable Access</td>
<td>Skilled personnel</td>
<td>Empowered Leaders</td>
</tr>
<tr>
<td>Consistent and Adequate funding</td>
<td>Ongoing Professional Learning</td>
<td>Support Policies</td>
</tr>
<tr>
<td>Technical Support</td>
<td>Assessment and Evaluation</td>
<td>Shared Vision</td>
</tr>
<tr>
<td></td>
<td>Student-centered Learning</td>
<td>Implementation Planning</td>
</tr>
<tr>
<td></td>
<td>Curriculum Framework</td>
<td>Engaged Communities</td>
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<td></td>
<td></td>
<td>Supportive External Content</td>
</tr>
</tbody>
</table>

According to Grubb (2009), four types of resources should be considered in relation to support for any school improvement endeavor: (a) simple (e.g., class size), (b) compound (e.g., class size reduction plus staff development), (c) complex (e.g., pedagogical approaches), and (d) abstract (e.g., school climate and stability). Grubb often emphasized that simple resources are sunk into sophisticated circumstances, and then questions begin to arise regarding why they do not work. This problem has recurred time and again regarding information technology integration: Technology is purchased,
professors are provided one-shot how-to training, and then they are charged with using it successfully in the classroom. The dilemma happens, according to Grubb (2009), because one resource item is not enough to improve learning. When a compound resource is not preferred over a simple one, the learning turns out to be ineffective. When Grubb’s framework is considered, administrators can effectively design a plan for resource allocation directly related to the identified first-, second-, and third-order barriers (Ertmer, 2005).

**New Generations of Professors and Technology**

Researchers have agreed that information technology has already transformed the way we live, learn, work, and play, and that such changes will likely continue. Professors are a diverse group demographically as well as philosophically. Now that many of this generation have been in classroom teaching for almost a decade, it is valuable to examine whether technology barriers are the same for professors in different age groups. Employing a one-size-fits-all approach to meeting professors’ technology integration needs has thus far not proven effective, so it may serve administrators well to consider this demographic data to help guide their efforts in designing a strategic plan.

According to the NEA (2008) survey, there exist variations in the ways teachers use and perceive technology. More experienced teachers have made great improvements in their Internet use. Instructors who were new (42 compared to 34%) to using the Internet for research and information daily were more likely (32 compared to 26%) to use technology for their daily instruction. Furthermore, early-career educators established that they were satisfied with their technology aptitude relating to their task, and over 90
percent alleged that technology enhanced the effectiveness of their work. Another survey that Project Tomorrow (2011) conducted discovered that 45 percent of instructors with experience ranging from 1-3 years are much more likely to say that technology enables them to create more interactive lessons as compared to 31 percent of their peers with 16 or more years of experience. Researchers, however, were surprised to learn certain attitudes of instructors regarding technology integration. Part of the surprise was the discovery that instructors with less than 5 years’ experience, though more at ease with technology, did not make use of it in classroom instruction (Russell et al., 2003). This point was again confirmed in a later survey in which new educators were more likely to ascertain that the improper use of information gathering on the Internet does have a negative impact on the quality of student research (NEA, 2008). A need for further exploration about this topic is evident following the two findings mentioned. A contradiction seems to exist about popular opinion regarding digital natives and immigrants’ beliefs about technology. Based on the review of the literature, Bebell et al. (2004) revealed that there is a small statistical variation between novice instructors and those who had been in the profession for about a decade regarding general technology integration.

Nevertheless, there is a difference in newer instructors’ technology use at slightly higher levels of preparation and accommodation, and lower levels of delivery and student technology use, than their more knowledgeable counterparts. Russell et al. (2003) and Owens’s (1999) analyses suggested that newer instructors may be busy with classroom management and other concerns rather than trying to integrate technology into their instruction. Furthermore, Lui & Szabo (2009) recognized that technology
integration requires incredible effort, time, and energy regardless of one’s age, so it is possible that barriers may have little to do with generation gaps.

A study on 2,000 pre-service teachers in Canada who tested out Prensky’s (2010) theory that there would be a digital divide in the technology competencies between teachers under and over the age of 25 yielded no significant differences (Guo et al., 2008). This study disproved the belief that digital native teachers would be more technologically savvy. The authors warned that the perceived duality of natives and immigrants may be a distraction rather than an insight into these groups of teachers’ aptitudes. The diversity of computer technology users and their competencies, rather than age factors, is to be further researched. A research by Leis (2009), the lone primary study on digital immigrant teachers, surveyed the freshmen enrolled in a Midwest teacher education program with little or no experience in the classroom. What were the discoveries? (a) The aspiring teachers were skilled in basic, but not advanced, technologies; (b) More time was spent on social networking with less on classroom instruction; and (c) They lacked proficiency for using assistive technologies for students with learning difficulties. Researchers concluded that just growing up immersed in technology does not provide a direct correlation to being more proficient in using technology in the classroom in ways that result in increased student achievement (Bates & Sangra, 2013; Bransford, Brown, & Cocking, 2000; Collins & Halverson, 2009; Prensky, 2010a; Russell et al., 2003).

We thereby observe that although some benefits exist from the research works of Guo et al. (2008) and Leis (2009), some limitations also exist. We cannot generalize studies that center on pre-service teachers to the typical teaching population for basic reasons. Pre-service teachers do not have enough experience to anticipate fully whether
they are willing or able to integrate technology into their instruction. Furthermore, at this stage, they are at the whim and will of their supervising teachers and university professors (who may or may not advocate technology integration), so it is not entirely accurate to suggest that these parameters translate authentically to managing one’s own classroom.

In conclusion, competency in information technology is clearly a necessary element among the numerous authors reviewed, who predicted professors’ implementation of these tools for instruction (Bates & Sangra, 2013; Brush et al., 2008; Schoepp, 2008; Wood et al., 2005). Consequently, novice instructors ranked technology support and professional development on technology integration as a lesser barrier than did older teachers (Ertmer et al., 2006). In another study on social studies teachers, participants with fewer than 2 years of teaching experience expressed that they didn’t benefit as much from the training being evaluated because it focused too much on technology skills and was geared toward instructors who had taught for a long time with no technology skills (Zhao & Bryant, 2007). Three different types of technology users exist: inexperienced, experienced, and renewing, and each type needs different professional development (Palak & Walls, 2009). In addition, professors of all ages can be at various stages in their careers; therefore, care must be taken not to generalize that young or old in age automatically equals the novice or experienced in career, respectively (Lui & Szabo, 2009). A good number of researchers gave self-reported claims from teacher surveys on this topic and were not supported with observable evidence from the classroom, but they still indicated an adjustment in an attitude, which itself is worth exploring. Assessing barriers to technology integration requires valid and reliable
measurement instruments. Most of the research reviewed in this study was based on self-report rather than observation (Vignare, 2007).

According to studies by Ertmer (2005) and others (Becker, 2000; Judson, 2006; Ottenbreit-Leftwich et al., 2006, 2010; Palak & Walls, 2009; Rakes et al., 2006), teachers’ pedagogical beliefs are far more important than access to resources with regard to barriers to technology integration. These authors also maintained that the digital native teachers reported different kinds of first-, second-, and third-order barriers than their immigrant peers. When younger teachers hold a different orientation to and history with technology, it could impact their attitude towards integration.

Lastly, we also have a new generation of information technology to consider as we continue our study of new professors. A good number of studies on this topic of professors and information technology integration were conducted in the late 1990s to mid-2000s when instructional technologies were not as sophisticated as they currently are. The Web 2.0 revolution has drastically changed the Internet’s capacity from passive one-way learning (e.g., researching via Google, watching videos online, and cutting and pasting information) to active participatory learning (e.g., contributing to a blog, taking online polls, or filming and posting a video to YouTube). The Internet is just one of several instruments, however, that professors might use in the contemporary classroom. The supplementary curriculum loaded onto CD-ROMs has become a standard element of any textbook package purchase. Certain institutions are abandoning textbooks entirely and buying scores of iPads. Classroom response systems, interactive whiteboards, document cameras, and handheld devices are all finding their way into schools—and bringing with
them new instructional horizons as well as new barriers. Today’s students of higher education expect technology integration that can provide quality learning. It is necessary that the barriers to such implementation be reduced (Bates & Sangra, 2013; Vignare, 2007).

**Implications**

From the above studies, we have come to a good understanding of information technology integration in the classroom and its barriers. This study accounted for several components not included in past research, which contributed supplementary insights into the existing theoretical framework. The study’s main concern would be the barriers that professors encounter as they try to integrate technology into instruction. These factors would be to focus on (a) analysis of whether first-, second-, or third-order barriers affect professors’ integration process; (b) an updated and more clearly defined view of instructional information technology advancements available for classroom instruction; (c) recommendations to administrators for developing a strategic plan that uses multiple resources to reduce barriers; and (d) a recommendation for the direction of future research.

**Conclusion**

In this literature review, I wanted to find out the current tools and uses of information technology in the classroom and the common barriers that prevent higher education professors from using information technology for instruction. The goals were to
provide insight into the challenges professors face and to offer recommendations to lessen those barriers.

Over the past three decades, numerous higher education institutions have implemented information technology into classroom instruction. Such intervention reflects the belief that information technology can improve students’ levels of academic achievement and assist them in competing in the digital world. As information technology is increasingly associated with higher education in the 21st century, its integration into classroom instruction as a strategy for promoting student success is essential.

Nevertheless, barriers to information technology integration into classroom instruction exist and require solutions. In relation to this issue, researchers in the past have not been able to provide the desired solutions to the roadblocks to implementation. Professors’ use of information technology in the classroom for instruction remains minimal. There is a vital need for more research on information technology, especially regarding the barriers of its adoption into classroom instruction. The first need is a simple description of the information technology integration process required for classroom instruction, the barriers, and what skills professors must have for effective adoption. Secondly, quasi-experimental research should assess the barriers to information technology adoption in the classroom. Thirdly, evaluation research is needed to measure information technology’s effectiveness in student achievement. Fourthly, there is the need for qualitative and ethnographic research to find out how information technology integration is being implemented in higher education. Fifth, there is the need for basic theoretical research to find out the barriers to information technology integration. For
investigation, specific questions are: What are the prevalence and distribution of information technology in higher education?

Finally, how does information technology instruction differ from other methods of instruction? Until such questions are answered, barriers to information technology integration will remain a mystery.
CHAPTER III

METHODOLOGY

The intent of this qualitative research is to understand the English department professors’ integration of technology into instruction. I selected a qualitative case study design based on the research questions. This design will be most appropriate in line with the five approaches of qualitative studies: Narrative, Phenomenological, Grounded Theory, Case Study, and Summary (Creswell, 2016). The approach that will offer the most beneficial design for this research will be a case study. The case study dwells on a rich picture of a bounded system (Merriam & Associates, 2002) and is a form of empirical inquiry that explores a modern phenomenon extensively (Yin, 2009).

This chapter contains the methods and procedures for the qualitative case study. Qualitative research employs both inductive and deductive reasoning strategies. It is constructionist, the intent being to develop an understanding of the experiences of others based on the responses of participants (Creswell, 2016). Cases can be individual(s), program(s), institution(s), group(s), situation(s), or events (Creswell, 2016). Related design elements described include (a) population, (b) sampling, (c) informed consent, (d) data collection, (e) instrumentation, (f) validity and reliability, and (g) data analysis. The study results may add important knowledge to the current literature by providing perceived best practices of overcoming barriers for instructors to implement technology into instruction in higher educational institutions. The chapter also includes the discussion of the research method and design, how the participants were chosen, and the instruments that were used in the experiment. The limitations, assumptions of the study, and ethical
assurances will follow this discussion. The chapter then concludes with a summary of the research method.

**Rationale of the Study**

The purpose of this study to investigate human behaviors within the contexts of their natural happening (Creswell, 2016; Hatch, 2002). This study includes using interviews to explore the insights and beliefs of the professors. In general, qualitative design involves a vivid description of people’s opinions and experiences (Yin, 2009). The use of a qualitative approach is the best tool for this research study because it will help to attain a detailed understanding of professors’ experiences in adopting technology through the use of open-ended questions. This approach is opposed to quantitative method, which requires use of specific, narrow questioning of participants and might limit information. In the structured interviews, the participants were interviewed over a period of two semesters. The interviews consisted of open-ended questions, which allowed the participants to transition into a conversational manner, guided by a certain set of questions (Yin, 2009). Throughout the duration of the meetings, field notes were taken in accordance with observing the participants’ reactions, behavior, and body movements (Li, 2008; Yin, 2009).

**Data Collection Procedures**

A purposive sample strategy provided for the collection of data for this study. Leedy and Ormond (2005) emphasized the advantage of purposive sampling in which the researcher has the freedom to choose individuals, locations, and events connected to the particular topic being researched for easy access to the required data. A single
phenomenon for this research focused on the level of usage and roadblocks that may prevent professors at Johnson University from integrating technology into instruction. Based on the review of literature and my research questions, the sampling frame was limited to professors who taught undergraduate English courses in Johnson University. According to Creswell (2016), one of the most important characteristics of a case study research is determining who can best answer the research questions. Professors at various levels may have different levels of technology usage; they may experience different barriers or share the same experiences. Understanding the levels of usage and barriers that may exist in these grade levels is the main purpose of this study. The availability of technology to the professors in this institution is the same. Technology found in this institution includes overhead projectors, several televisions, computers with printers in the library, and a well-equipped computer lab with Internet access and enough computers to accommodate an entire classroom of students. The purpose of this study is to determine to what levels professors use technology and what obstacles impede their integration of technology. Ascertaining the accurate account of usage and barriers that professors encounter in integrating technology into instruction is the goal.

The objective of the study is to use thematic analyses to identify those barriers that prevent professors from using technology; it is not to develop a theory based on the currently existing problem. With the complexity of technology integration based on multifaceted issues such as inadequate time for training of staff, there could be no better way to deliver effective instruction than shared best practices (Lee & Liu, 2006).
The Units of Analysis

The units of analysis for this research are nine professors at Johnson University, a private university in New Jersey, that was deliberately selected for sampling. The English department was selected for its potential as rich sources of data related to the topic under study (Creswell, 2016; Patton, 1990). The goal, then, is credibility, not representativeness or the ability to generalize. The first step in designing a case study is establishing the unit of analysis; for this study an individual person categorizes a case (Yin, 2009).

When conducting research on barriers to integrating technology experiences, it could be beneficial to study a specific department; in this case, professors from one specific, separate department, which may allow a higher degree of generalization of the findings. The degrees of usage of technology and the barriers encountered may vary depending on the department. For example, departments such as Mathematics or History may use or experience technology barriers differently than Communications departments that might use technology more extensively. The degrees of barriers and the usage of technology may differ depending on the department or the professor. The integration of technology in teaching could be very innovative and beneficial to professors as it is attractive, motivating, and challenging, especially in teaching vocabulary (Dogra, 2010).

I selected professors who had taught at least one academic semester to ensure that they were used to the department and might have used technology. Studies by some researchers have revealed that professors tend to be skeptical about integrating technology prior to receiving proof of its efficiency (Evans & Henriches, 2008). Therefore, it is
expected that as professors become familiar with technology, anxieties and fears will decrease; then they will begin to handle technology with more confidence (Wankel & Blessinger, 2013).

A significant criticism about using a purposeful sample is the limitation in generalizing the results to any population. Because the sample may not be representative of the entire population, this type of sampling may result in a low external validity of the study. Nevertheless, purposeful sampling is a widely utilized method and proves to be economically effective, time efficient, simpler to administer, and likely to ensure a high participation rate (Castillo, 2009).

The nine cases were selected in line with the information expected from the participants’ experiences at Johnson University and needed to answer the research questions (Creswell, 2016). The nine were also chosen to identify cases that elicited a wealth of information concerning critical issues related to the purpose of the research (Yin, 2009). In this study, maximum variation strategy was the specific type of sampling (Yin, 2009). This strategy brought a diverse sample that characterized variations in experience, age, attitude, and beliefs. The maximum variation illuminates different views and relevant common patterns that cut across cases and derive their significance from having emerged out of heterogeneity (Merriam, 2009). Participation in the study is voluntary, and participants have the right to withdraw at any time.

This is an instrumental case study because it focuses on a particular issue at Jackson University (Creswell, 2016). The professors employed had their own unique experiences with regard to barriers to technology integration. To determine my initial listing of
potential participants, I contacted the Department Chair of the Department of English by email. After communication was established, I made arrangements to meet in person to discuss further what I intended to do while on campus. In this meeting, I discussed the purpose of my study, the nomination process, research design, timeline for data collection, and assured participants that efforts that would be taken to protect the confidentiality and privacy of participating professors. The population of the study consisted of English Department professors who had taught for at least one academic semester. Following this meeting, I asked the Chair of the Department of English to provide a list of faculty names that met the study criteria. I then emailed the individual professors and requested their participation in the study in the fall of 2016. The email described the study and what was required of them to participate. If they did not respond after one week, I sent that individual a second email. If there was still no response, I made a notation on my list and emailed another professor. I always tried to have 15 confirmed email requests pending at any given time. I emailed 15 individuals at a time for two reasons. First, I wanted to make sure that I could interview each individual in a timely manner, and secondly, I wanted to recruit more professors to be sure I had a reasonable number at a time. I tried to find a date for our interview that fit with the individual’s schedule, so I would need to keep my schedule relatively flexible.

The number of participants varied depending on when saturation of data occurred, or no new themes emerged from the data (Creswell, 2016). The center of this study involved exploring the phenomena at Johnson University extensively and drawing
conclusions from inductive judgment. That is why the researcher assumed that the qualitative research method was ideal for this study.

**Site Selection**

The research site, Johnson University, is one of the country’s leading private universities in the Northeast. It has 46-acre main campus, a total enrollment of nearly 6,000 undergraduate and graduate students and offered more than 60 rigorous majors as of the spring 2016 semester.

The participants are professors from Johnson, a private university in the United States. Inherent in the institution’s mission statement is a commitment to focus on academic and ethical development in a diverse and collaborative environment. The university prides itself on being an institution that prepares leaders for professional and community lives in the 21st century. This research investigated a case in which professors were assumed to be using technology; I therefore investigated the level of usage and barriers professors encountered in integrating technology into instruction in our technologically advancing world.

For the success of the research, it is important for a researcher to be sure that he can gain access to the group that is crucial for the research. This procedure entails procuring permission from the rightful authority to contact potential participants. It can also include getting the target group to agree and collaborate with the research. Another practical consideration is meeting deadlines to complete the study within specified time constraints (McDonough & McDonough, 2014).
It is important to select participants purposefully who best understand the research problem presented for the study and can provide the best information based on the research questions (Creswell, 2013). Professors from the English Department of Johnson University with similar demographic characteristics provided in-depth information on their perceptions on using technology in the classroom. According to Hatch (2002), participants who share common characteristics are homogeneous samples. Therefore, participants are familiar with the concept of integrating technology.

The English department in this research study was purposefully selected among the departments of Johnson University. I targeted this department selected for the study on levels of usage and barriers to integrating technology for a number of reasons. Bringing technology into courses is a priority to the teachers. Students who attend the English department come from diverse backgrounds and face the demands of the 21st century that require professors to integrate technology in all subject areas. The use of modern technology can only be possible with a well-versed knowledge of English.

Students today have grown up using technology, and professors must integrate technology to meet their needs. The chair of the department, according to the website for the school, brings technology into courses, including wikis, blogs, and Second Life, an online virtual world developed by Linden Lab. A decentralized server architecture is used to meet the demands of thousands of users who may be online at the same time (https://www13.shu.edu/academics/artsci/English/faculty.cfm). The application and use of information technology demand that one has skills, knowledge, and the willingness to
learn the technological skills that are necessary to prepare students with adaptive skills needed to survive and thrive in the digital age (Ash, 2013; Bates & Sangra, 2013; Pitler & Hubbel, 2012).

Secondly, the staff population in this department was large and diverse enough to provide a reasonable sample size for my intended interview. Each participant was actively teaching at the study location at the time of the study. Yin (2009) suggested using the number of participants or cases considered necessary or sufficient for the study.

This study is concerned with understanding the levels of usage and the barriers to integrating technology into instruction at Johnson University, an institution that seeks and shares knowledge, always striving for intellectual integrity. In the 21st century, the technology revolution has transformed higher educational institutions, leading to new ways of learning. This expectation provided an interesting context from which to examine barriers to integrating technology into instruction.

Private universities have not been affected by cuts in state funding levels over the last 25 years in the way that public universities have been affected, according to State Higher Education Executive Officers (SHEEO, 2015). Therefore, I expected Johnson University to maintain its supply of technology. A private university will benefit from this study because it is likely to attract more students with unique features like technology. Merriam (1998) encouraged the idea of “convenience sampling” in which a site is chosen based upon time, money, and location.
Lastly, the English Department of Johnson University grants recognized and standard baccalaureate degrees and is committed to developing and using technology to improve student engagement and learning. Thus, selection of this institution has expanded both the literature on the level of usage and barriers to technology integration in the academy and the broader body of knowledge about barriers to technology integration in higher institutions. This is a unique aspect of the institution. My familiarity with key faculty and staff members, coupled with my knowledge of campus programs and class instruction, was useful.

**Interview Questions**

The following interview questions were asked:

1. Which type of technology do you use in your instruction?
2. How are you currently using technology, and how much time do you spend using it?
3. Is technology creating new and different learning experiences for the students?
4. Is technology allowing you/students do old things in new ways?
5. Which technology do you consider as working best for you?
6. With regard to Johnson’s policy, what emphasis is placed on information technology integration?
7. What difficulties have you encountered using information technology?
8. In your opinion, what have been the positive effects with information technology usage? What have been the negative effects?
9. In your opinion, do all professors use technology? If not, why are other professors not utilizing information technology in their instruction?

10. What other ways do you think that technology can be used apart from the present usage?

11. In your opinion, what issues need to be improved on how information technology is being implemented?

12. Were you taught how to integrate the technology into your lessons, or merely how to use it?

13. In your opinion, how can Johnson University motivate integration of information technology intensively?

14. Does Johnson University require mandatory departmental training about the standard policies and practices concerning information technology?

15. With what types of opportunities for learning about technology have you been presented?

16. In your opinion, does cost play a role in the policy and procedures concerning the implementation of information technology?

17. Do you think you have all the skills needed to implement technology in your instruction?

18. In your opinion, how should higher education authorities improve their policies to stimulate extensive use of information technology?

19. What are some of the barriers you encounter in using technology?
20. How can you control or eliminate the barriers, if any, that you experience?

According to Creswell (2016), data in qualitative studies are generally collected through interviews and documents. Webster (1993) defined interview as “a meeting at which information is obtained from a person” (p. 655). In qualitative research, themes and theories are identified after data have been collected; analytic induction is also used to outline the data. An extensive, tangible description and the words of qualitative research are helpful in persuading the reader of the result’s trustworthiness (Gall et al., 2007). Qualitative research involves relationship building with the participants. Therefore, data were gathered in a conversational manner to encourage participants to respond openly and honestly. The introduction to the interview and a list of the interview questions acted as a guideline for the interviews. Each interviewee was assigned a code. The confidentiality of all interviewees and English Department professors who participated in this study has been preserved.

The information from the interviews was solely used for purposes of analysis. Next, after conducting the interviews, I listened to the audio recorder with the objective of transcribing the content. During this process, I studied the transcripts for common themes or patterns that emerged. According to Creswell (2016), the process of data analysis entails preparing the data for analysis, conducting different analyses, moving deeper into
understanding the data, representing the data, and making an interpretation of the larger meaning of the data. Furthermore, Creswell (2016) also noted that analyzing data from qualitative interview research is an ongoing process, and one that involves repeated reflection about the data, asking analytic questions.

At all times I protected the integrity of the research by following professional ethics. All recorded and documented responses will be destroyed 3 years after the completion of the study. All participants in this study will receive a copy of the finished study upon request.

In-depth interviewing is the most widely utilized method of collecting data in qualitative research, particularly narrative inquiry (Creswell, 2016). The in-depth interview took the form of a face-to-face conversation during which the researcher worked with the participants to elicit rich descriptive or explanatory data with the objective of making meaning. Such a method also produces transcripts that can be analyzed for thematic or contextual meaning, which helps researchers to arrive at a greater understanding of the phenomena in question. Structured one-on-one interviews were arranged via email and conducted using 20 open-ended questions to obtain an understanding of the level of usage and the roadblocks that professors faced in adopting information technology. This method allowed for a conversation to take place during which both the researcher and participants were free to explore the topic fully or expand the context of the conversation (Hesse-Biber & Leavy, 2011).
An interview guide based on the 20 questions was used to make sure each participant in the study was asked the same questions. Supplementary questions were developed based on participants’ responses to obtain an in-depth understanding of their experiences related to the integration of information technology into instruction. I did employ the technique of in-depth interviewing in this qualitative study and conducted all of the interviews myself.

In the beginning of each interview, I briefly described the nature and purpose of my study and encouraged the participants to ask any questions they had. I also let the participants know that they had the option of withdrawing from the research at any time without giving any explanation. I allowed the participants to tell me about their experiences and reflections at their own pace with minimal leading or coaching from me.

Interviews lasted approximately an hour and were held at the participants’ office or in a location of their choice on campus. Before beginning the interview, I asked the participants to sign an Informed Consent Release and gave them a copy of the form. I also asked the participants to select a pseudonym, or I assigned one. I asked participants’ permission to record our interview. I also transcribed and coded the data from each interview into themes. Codes are in the form of themes, models, indicators, and qualifications that are causally related. Themes are typically patterns found in the data, which at the least describe and organize the researcher’s observations. With good, carefully-constructed themes, the phenomenon can be interpreted excellently (Creswell, 2016).

One-on-one interviews using open-ended questions determined the perceptions
and experiences professors had while integrating information technology into instruction. All of the interviews were transcribed within 72 hours. I recorded my thoughts about the interview and any emerging themes. I reviewed notes from the interview after I transcribed it.

**Data Analysis and Procedures**

In qualitative research, data analysis is concurrent with data collection. Data were collected based on the notes collected from individuals. Transcriptions from interviews were read carefully for completeness and accuracy. I carefully read the transcribed data line by line to obtain a general sense of the information and to reflect on the overall meaning before dividing the data into meaningful analytical units (i.e., segmenting the data; Creswell, 2016). To tackle each research question, I formed and grouped common categories as they developed. According to Bogdan and Biklen (2007), through coding, regularities and patterns can be discovered. Coding categories were modified, discarded, or changed as they developed. After reading the transcriptions of the interviews several times, I took note of the key words and similarities of thoughts and perceptions among the participants. The coding process involved highlighting certain words, phrases, and patterns that appeared in the interviews. The coding process is an evolving procedure in which data can change periodically (Bogdan & Biklen, 2007; Merriam & Associates, 2002). For that reason, each participant’s interview and transcriptions were compared in detail to identify emerging themes. Once themes become known, abbreviations were given to categorize the themes.
Based on the fact that the researchers are the most important means of data collection in qualitative research (Merriam & Associates, 2002), much debate surrounds the trustworthiness and credibility of this type of research. I conducted semi-structured interviews as the primary means of data collection for the current study’s PES narrative approach (Bamberg, 2006; Creswell, 2016).

**Ethical Issues**

After my dissertation committee approved the proposal, a cover letter was submitted to the IRB that explained the purpose of the study and asked for permission to interview professors at Johnson University. Certain professors were asked to participate in the study. A letter provided participants with information on the purpose of the study, any foreseen risks or benefits of the study, and a statement that gave participants an option to withdraw from the study at any time. Furthermore, the consent form provided participants with the contact information of the researcher’s mentor and department chair.

Each participant’s information is handled in confidence. Coding was utilized with letters to protect participants’ identity and number, and the institution was given a pseudonym. Furthermore, to code responses to the interview, initials were used. Finally, at the completion of the research, all data will be securely stored.

**Pilot Testing**

A pilot test was conducted on the interview protocols to solicit feedback and possible recommendations, which allowed pilot test respondents to make suggestions for improving these tools before they submitted them to actual participants of the study. The
pilot tests were given to two colleagues in the department who were not part of the sample group for the study. Pilot tests are to find out if those in the sample are capable of completing and understanding the interview questions of the study (Creswell, 2016). Conducting a pilot test allowed for questions to be rephrased, eliminated any threatening questions or identity questions that were ambiguous, and ensured that each respondent interpreted the questions similarly (Gall et al., 2007).

**Validity and Reliability**

Although qualitative researchers can never capture an objective truth or reality, a number of strategies can guide the qualitative research to increase the credibility of findings (Merriam, 2009). To ensure trustworthiness, I relied on peer examination, which means having a colleague or knowledgeable person review the data and assess whether the findings are consistent with the data. When required, follow-up interviews with the same people can be conducted (Merriam, 2009). Another method I applied was member checking in which the researcher takes data and tentative interpretations back to the people from whom they were derived and asks if they are credible (Creswell, 2016). To further ensure validity and reliability of the data, I emailed transcribed interviews to the respective respondents to seek approval of accuracy from them before I began any type of analysis.

After the initial coding of the data during which I identified themes, I consulted my peer reviewers, who read the transcripts and helped me determine which codes were closely related and, hence, could be merged. Finally, I used a coding method to consolidate and reduce the data. Through the use of data analysis, I could try to make
sense of the data collected, interpret what people said, and understand what the researcher had seen and read—a process of making meaning (Merriam, 2009).

**Summary**

In Chapter III, I tried to explain the qualitative research used in this study. This type of research included the research questions, population and sample used, instrumentation used, methods and data collection, ethical considerations, and the process of data collection and analysis.

Following the approval from the Institutional Review Board for Seton Hall University, I conducted nine interviews. The guiding force behind these interviews was Etmer’s (2010) conceptual framework of this research study that concerned “first- and second-order barriers to integration of technology” (p.42). Through the use of an interview guide, participants were asked to explain their level of use/barriers to technology integration.

After collecting the data, I transcribed the audio recordings from each interview. During this process, I analyzed the data and searched for themes that emerged. In order to organize the material properly, coding was necessary. Transcripts from these interviews are included in the Appendix IV, and the findings of this research are detailed in Chapter IV.
CHAPTER IV
RESEARCH FINDINGS

Introduction

In this chapter, I present the findings based on the analysis of the interview data. The intent of this qualitative research is to understand the English department professors at Johnson University in New Jersey’s integration of technology into instruction. I adopted a qualitative approach to understand the phenomena of interest. Nine English department professors participated in the study. The qualitative approach was essential to understanding the perceptions of these English department professors. I conducted one-on-one interviews with each professor. The aforementioned interview guide, which consisted of 20 questions, was used during each interview and, in some cases, follow-up questions were asked either to probe deeper into a topic or clarify a previous response. This instrument was designed to explore the perceptions of professors regarding the integration of technology into instruction, particularly as it related to Ertmer’s (2010) conceptual framework concerning first- and second-order barriers to technology integration.

With each subject’s consent, an audio recorder was used to record the interviews. Each interview was transcribed, and upon analyzing and coding all of the data, common themes and patterns related to professors’ technology integration emerged. The findings from this research are addressed in this chapter. Chapter V will provide additional details.
and also compares these findings to the literature base outlined in Chapter II. The findings presented in this chapter are based on the following four research questions:

R1: How are professors of the English department currently using technology?

R2: What is the level of their usage?

R3: How does technology integration impact instructional practices offered in the English department to enhance learning?

R4: What are the reasons/barriers that explain why professors of English may not use technology regularly as an integral part of instruction?

Participants’ Demographic Profile

The participants in this study consisted of nine professors in the English department at Johnson University. The participants shared information about their work experiences, which are summarized in Table 2 below. Four professors between the ages of 30 and 40 had fewer years of teaching experience than the five professors between the ages of 41 and 69. The professors felt that their use of technology had simplified much of their work. These older professors seemed to be skeptical about the use of technology at times and were not as familiar with the use of certain applications as those between the ages of 30 and 40. Educational background was the most consistent among participants. All nine participants had earned a master’s degree, and five had already earned a doctorate. Two of the participants shared that they were in the process of completing a doctorate. While all nine participants now work full time, three had worked part time from the time of hiring. Regarding their academic rank, there were four assistant professors,
four associates, and one professor. Out of the nine professors, four were untenured, and five were tenured.
Table 2

*Age, Years of Experience, Educational Level, Academic Rank and Tenure*

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<th>Years of Part-time experience at Johnson</th>
<th>Education</th>
<th>Academic Rank</th>
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The following provides a brief profile of each English department professor in the order in which they were interviewed. Each participant was given a pseudonym from A to Z and is referred to by those pseudonyms in the description of the findings in Chapter IV. The goal of this chapter was to highlight these English department professors and provide them a space that honors their participation and generosity for sharing their experiences and perspectives by participating in this study.

Participant Profiles

The English professors who participated in this study described their personal and professional lives. I hope that their testimonies will add to the richness of the data and provide a greater understanding of the level of technology usage. The following is a description of each participant.

Participant Profile 1: Abu

Abu was a 34-year-old with 8 years of teaching at Johnson University (3 years part time and 5 years full time). He had a master’s degree in English and was currently in the process of completing a doctorate in Communications. Abu was an assistant professor who taught literature and was interested in publication. He has written about bicycle nomads for Orion Magazine; wildcat oil geology for Fortune/Small Business; and solar power and offshore wind power for The New York Times Magazine. Abu grew up in the age of technology and was familiar with much of what he needed to use for his students in instruction. He was also zealous about using new technology tools available such as Clickers, Google Docs and Slack, video conferencing, Skype, Easy Bib, emails, smart board, and PowerPoint. He noted that technology tools such as email, smart board, and
PowerPoint made his teaching easier, and he got things done in a timely manner. Abu believed that oftentimes because students are so used to technology, they get a bit distracted. This distraction, he believed, has caused some sort of difficulty in just getting students focused. Abu could not imagine a world without technology. For the future, Abu aspired to be in a position of senior leadership, like a dean of students at Johnson.

**Participant Profile 2: Barbara**

Barbara is a 69-year-old with 17 years of full-time experience teaching at Johnson University. She had a master’s in Postsecondary Administration and a doctorate in English. She was an associate professor. Barbara stated that she has always believed in being open to new ideas and new paths. Her research interests include material culture and gender studies. Barbara taught Composition and literature courses. She also taught a variety of courses in the undergraduate program. She was interested in the use of technology tools for teaching such as Google Docs, video conferencing, Skype, email, smartboard, and PowerPoint. Barbara was not against technology but did not rely on it completely. Although she sometimes used PowerPoint for her lectures, she also used books. Toward that end, she has tried various tools in her classes including wikis, projectors, videos, and blogs. She has given numerous presentations. Although she has used PowerPoint for some presentations, she always kept backup notes. Barbara maintained that although technology has so many advantages, she did not have time to learn the things she needed to.
Participant Profile 3: Carr

Carr is a 64-year-old with 15 years of teaching experience at Johnson University. He currently was an associate professor who taught writing. He had his doctorate degree from New York University and was interested in how people learn how to write. Carr had a great love for technology but stated that he did not like spending too much time on learning new things. He noted that whenever professors shared what works well for them, he was open to learn from them. However, he lamented that his tight schedule may not allow him to catch up with new technology. At the time of this interview, Carr was researching knowledge transfer in writing. Other interests he noted include directed self-placement, computer-based assessment of essays, self-efficacy and other self-beliefs in relation to writing achievement, and integrating assessment across the campus.

Participant Profile 4: Dominique

Dominique was a 55-year-old with a doctorate degree and 22 years of teaching experience (1 year part-time and 21 full time). She was a professor who had been at Johnson University her entire teaching life since 1995, teaching a wide range of English and Women’s Studies courses that include Medieval Literature, Chaucer, Women and Literature I, History of the English Language, and Literature of Adolescence. She also taught in the College English and Core programs. Since 1998, she has been the Director of Graduate Studies in English, coordinating the M.A. Program. Her research interests were in medieval literature, Medievalism, cultural studies, and gender theory. Besides, and often alongside medieval literature, she has written about baseball, science fiction, and reality television. Because she loved studying languages, she wrote in Old and Middle
English, Old French, Spanish, Italian, and Old Norse literature with occasional ventures into Latin, Provencal, and Ladino. Because of her interest in writing, she has attended most seminars that Jackson University has offered regarding technology. Sometimes her students watch videos in class. It was her policy not to allow laptops or cell phones in the classroom except for emergencies to avoid distraction. She admitted that because she did not grow up with technology, she has missed out on a lot of new things.

Participant Profile 5: Edna

Edna was a 58-year-old with 14 years of teaching experience at Johnson University. She had a master’s degree in Journalism and was an associate professor. She taught poetry and nonfiction writing at Johnson and was actively engaged in the undergraduate literary and performance scene on campus. Edna said that she was first and foremost a poet, working on her next collection. She has written recently about bicycle nomads for *Orion Magazine* and wildcat oil geology for *Fortune/Small Business*. Edna said that she loved technology although she did not have the opportunity to learn it as a freshman. She used whatever she was able to learn from the technology department for her instruction, though not as much as she wanted. She felt that she already had enough going on to spend more time on new technology.

Participant Profile 6: Ford

Ford was a 36-year-old who had been at Johnson since 2012. He taught a wide variety of undergraduate courses in 20th-century British and Irish literature from research methodology and critical theory to author and genre courses such as Introduction to the Short Story, British Novel III, Modern British Literature, Irish Literature Past and Present,
and James Joyce’s *Ulysses*. Ford had 1 year of part-time and 4 years of full-time teaching at Johnson as an assistant professor. He was interested in continuing to develop courses in Irish literature and in creating a minor in Irish literature for the students. Ford considered himself as lucky to have been born in technology era. He used Blackboard, Kahoot, Flickers, Prezi, and various Internet articles for his class. Depending on the day, he could use a program for the entire period or just for 5 minutes. He sometimes learned to use new technology tools by himself and shared such knowledge with his students. He was fascinated with the fact that technology tools like email have enabled him to communicate with his students even outside the classroom.

**Participant Profile 7: Grace**

Grace was a 33-year-old with 4 years of teaching experience at Johnson University. She was an assistant professor and taught literature. She used technology pretty much throughout her instruction for different purposes because she believed that technology enhances learning in the classroom. She said that it provides countless tools for learning and endless access to multimedia. She enjoyed using technology while teaching literature, writing, and Core subjects. She found that her research improves when she used technology in her instruction and believed that it helps students write more clearly. With the aid of technology, Grace felt that she was able to accomplish a lot. Regarding the level of usage, she believed that she maximized her teaching by using technology tools on a daily basis. Grace took the time to teach her students some basic technology that could help them in their studies. She related that although she still appreciated browsing physical books on library shelves, having ready access to the constantly growing library available online was invaluable. However, she observed that
the only “negative” effect was that this is a transition and thus requires adjustment.

**Participant Profile 8: Hank**

Hank, an assistant professor, was a 30-year-old with 3 years of teaching at Johnson University, a bachelor’s degree, and a Master of Science in Communication. Hank was the Coordinator of Second Language Writing and was deeply interested in technology and in the intersection of L1 and L2 writing theory. His research interests and areas of scholarship included threshold concepts in writing studies, met cognition and writing knowledge transfer, writing center pedagogy and practice for multilingual learners, international writing research, and teacher education in global settings. Hank used a laptop and overhead projector. He also used Blackboard for his instruction and used email on almost a daily basis to communicate with his students. He maintained that technology is faster and fun to use. He believed that there is always something new to learn, and that technology gives him, and his students access to material without the need to go to the library. He added that that it is not only convenient, but it makes documents that are saved less likely to get lost when saved even when the computer crashes.

**Participant Profile 9: Mike**

Mike was a 39-year-old with 11 years of full-time teaching experience. He had a master’s degree in Teaching and a doctorate degree in Communications. He taught creative writing. Mike’s scholarship focused on the history of fiction as a genre, as a category of knowledge, and as a repository of everyday epistemic assumptions. Mike was an associate professor. He was working on his second book and founds the use of technology invaluable for his instruction and his scholarly work.
Mike has presented dozens of conference papers and many invited talks at Charles Dickens University in Cambridge, the New York Public Library, and The Grad Center at CUNY, Columbia, Chicago, and elsewhere. Regarding the level of usage of technology, he said that he used technology in his instruction throughout the semester. Some days he spent more time using technology than others.

**Research Findings Analysis**

The purpose of this section is to present the analysis of the research findings. Based on the analysis of the interview data, the following major themes emerged. The first major theme, “use of application,” described the use of Dropbox, presentation software such as PowerPoint, Windows Movie Maker, OpenOffice.org, and Impress. English department professors also used Easy Bib, Studious, and online collaboration tools such as Google Keep, Red Pen, Go Visually, MindMeister, Slack, and InVision on Tablets, Google Docs, Kahoot, Cliff Notes, Clickers, and smart phones. The second major theme, “level of technology usage,” identified the level of the English department professors’ use of technology. The third major theme, “importance and impacts of technology integration,” addressed the relevance and effects of technology integration. The fourth major theme described the “barriers” that English department professors encountered as they integrated technology into instruction. In this theme, the theoretical framework of Ertmer (2010) concerning barriers became instrumental in positioning intrinsic and extrinsic factors as possible causes of barriers.
Major Theme One: Applications that Subjects Used

In the first major theme, the professors in the English department described their use of applications in response to the first research question: How are professors in the English department currently using technology? The purpose of this research question was to gain a broad sense of the professors’ use of technology in their instruction. The two interview questions (questions 1 and 5) allowed participants to express their usage of technology. The first question asked, “Which type of technology do you use in your instruction?” English professors at Jackson University reported using applications like the Prezi presentation tool as an alternative to traditional slide making programs like PowerPoint; Google Docs, a free Web-based application in which documents and spreadsheets can be created, edited, and stored; Dropbox, a free cloud storage service for sharing and storing files like photos, documents, or videos; and Video-recording of moving visual images made digitally. In each interview, professors described the consistency of their technology usage. Barbara, for example, blended technology usage with the traditional methods with which she was more comfortable. In using technology in their instruction, five professors—Abu, Ford, Grace, Hank and Mike, who were between the ages of 33-39—considered using wider applications more often than Edna, Dominique, and Carr, who were between ages of 55-64 and used them randomly or just to send emails and post on Blackboard. A reason for the variation in usage is based on the fact that the younger teachers grew up in the era of technology. In general, they found that technology tools like email make it easier to communicate with students even when not in class. Collectively, the professors felt that technology was vital to instruction even though the applications they adopted varied. Grace spoke about her usage as follows:
I do use the laptop, I use the overhead projector, and I connect the projector to my laptop periodically. And of course, within the computer, the hardware I use frequently is the Blackboard for my instruction. I might sometimes show something on the Web or Word document, but of course, sometimes email. But mostly everything that I do is contained in my Blackboard course for my teaching.

Dominique and Edna would send their students announcements by Blackboard to keep them updated. All the professors said that they encouraged students to email them with any concerns and not to wait till the next class. In addition to Barbara, Dominique, and Edna, who had limited technology usage, Carr stated:

In the course we use Blackboard, so that’s probably the thing I use consistently. Once in a while I use Google Docs and Dropbox, that’s about it… Don’t get me wrong, they are great, but I don’t know most of these apps and have no time to learn them.

A noted consensus in response to this question was the belief that professors generally would use at least email and Blackboard to communicate and post their syllabus and assignments. However, because of the varying degrees of technology proficiency among the faculty, there were those who were comfortable and those who were not as comfortable using various applications. Grace, one of the younger professors, stated:

Currently I use PowerPoint; Google Docs, a free Web-based application in which documents and spreadsheets can be created, edited and stored; and Dropbox, a free cloud storage service for sharing and storing files like photos, documents, or
videos. We use laptops in every class for different purposes, and I also use some applications outside the class to research… I would believe that the professors who are older and not familiar with some of these apps would not be comfortable using them as I do.

The review of the literature on information technology integration revealed considerable agreement that the applications and use of information technology demand that one has skills, knowledge, and the willingness (Hayashi et al., 2012a; Surry, 2011). In this study, the professors were willing to embrace technology, but some did not have the skills needed as the younger generations who grew up in the era of technology did. The majority affirmed that as a professor in today’s world, technology was vital in their instruction and certainly a way of staying up to date with the students.

Hank saw growth and improvement in the area of technology as he noted:

I do use PowerPoint, Google Docs, Dropbox, and others. The students are into technology, so I try to engage them as much as I can. I like to send them announcements by Blackboard to keep them up to date, especially if we missed class, on holidays, or over the weekend. I keep in touch with them that way. I encourage them to email me all the time, and I respond to them relatively quickly. Sometimes we watch videos in class while projecting images. It is my strong belief that technology usage can serve as a means to foster interaction and communication among students and instructors.

Barbara, on the contrary, expressed that while it is true that she uses technology in her instruction, this did not necessarily mean she did not use the old ways of teaching, like
the use of hard copy textbooks. She explained, “I come up with whatever works for me and the class at any given time, thereby using technology whenever I think it makes sense.” In line with the literature, participants in this study believed that at all levels of schooling, computer, and phone use can serve as a means to foster interaction and communication among students and instructors. According to some scholars, by using computers, students learn basic technical skills to research topics, write reports, get feedback from the professor, and deliver their work electronically (Blythe, Carpenter, & Sweet, 2015; Hakverdi-Can & Dana, 2012; Hechter & Vermette, 2012a).

The professors also agreed that information technology serves as a tool that professors can use to help students to learn in innovative ways and be productive in the digital world. Mike stressed this fact when he said: “Technology can often be a big springboard to work for the present while in school and subsequently in the workplace of technology.” Such a claim has been supported by some scholars, who maintained that by using computers, students learn basic technical skills to research topics, write reports, get feedback from the professor, and deliver their work electronically (Blythe, Carpenter, & Sweet, 2015; Hakverdi-Can & Dana, 2012). Their conclusion was that when professors engage in technology-assisted instruction, students gain lifelong learning skills necessary to succeed in our fast-changing world. Many researchers have supported this idea; they stated that information technology integration and other digital literacy are necessary because of the advancements of the digital age in which every organization uses technology and demands implementation (Bates & Sangra, 2013; Donnelly, 2010; Fillion et al., 2009; Quillen, 2013).
Technology **that works best.** This subsection regarding the above major theme clarifies which technology tool worked best for the professors. Question 5 asked, “Which technology do you consider as working best for you?” In the section above, the professors who were interviewed addressed the types of technology they used in their instruction. Now I will go into which technologies they considered to work best for them. The review of the literature on information technology integration revealed considerable agreement that the applications and use of information technology demand that one has skills, knowledge, and the willingness to learn (Hayashi et al., 2012a; Surry, 2011). Three of the nine professors—Abu, Grace, and Ford—were convinced that email and Blackboard worked best. Abu captured it in this way:

> Although I use several applications, I think email and Blackboard work best…
> they allow me to communicate with students. In that way we communicate a lot, and I can get information across faster than just waiting before the next class.

Carr, on the contrary, maintained that although he valued Google Docs, he admitted that it was not the program he used the most. For Barbara, although she was not so much into technology, the use of Blackboard made things easier for her as students could easily see the syllabus, announcements, or grades, which helped them to stay organized. She added, “The students and I also find the discussion board helpful.” Six of the professors—Abu, Carr, Dominique, Ford, Hank, and Grace—noted that Blackboard was treasured. Dominique lamented that while it was true that she liked Blackboard, it was sometimes unreliable, and she would have to contact help desk to resolve the issue. Edna was not as advanced in technology, and email worked best for her. She wished she
had more of the needed skills. Abu added that he loved many apps, and that email and Blackboard worked best for him. Blackboard, he explained, allowed him to communicate with the students. The professors also sent emails back and forth with students so that they could be in touch even when not in class. In general, all the nine professors I interviewed mentioned using email and Blackboard. However, they felt constrained by the time factor that prevented them from learning such technologies due to the competing demands of their schedules.

As information technology increasingly becomes significant in routine life and in the educational system, the demand of educational institutions to adopt it is therefore reasonable. Although some participants were thrilled by the advantages of technologies, others tended to enumerate the frustrations. From this analysis, the younger professors were thrilled by the use of technology and different applications compared to the older ones, who did not have the skills and, therefore, were not comfortable. Surry’s review (2011) maintained that when instructors have positive attitudes toward information technology like computers, these attitudes are positively correlated with experiences with computer technology adoption. As professors become familiar with technology, anxieties and fears decrease; they then begin to handle computers with more confidence. With such confidence grows the zeal that can influence their integration of information technology into instruction. It means that positive attitudes of professors toward computers would be essential for the meaningful adoption of information technology (Wankel & Blessinger, 2013).

The English professors in this study asserted that they used applications such as the
Prezi presentation tool as an alternative to traditional slide-making programs like PowerPoint; Google Docs, a free Web-based application in which documents and spreadsheets can be created, edited and stored; Dropbox, a free cloud storage service for sharing and storing files like photos, documents, or videos; and video-recording of moving visual images made digitally. These professors used such applications depending on their comfort level. Although all professors interviewed acknowledged that the use of technology in their instruction was vital, some struggled with the skills needed. The professors who were born in the digital age had more advantages than the older professors. Such professors used more applications than their counterparts, who were limited to email and Blackboard usage. Although all of the English professors interviewed acknowledged that technology adoption was of great importance, the competing demands of the schedule could present a challenge in acquiring required skills.

Major Theme Two: Levels of Technology Usage

The second major theme identified the English department professors’ level of technology usage in the second interview question: “What is the level of the professors’ usage of technology?” Intrinsically, the types of technologies used and how the professors were using them went hand-in-hand for most of the participants. The seven interviews questions (questions 2, 9, 10, 11, 12, 13, 14, and 16) that were derived from this research question allowed the researcher to discern the professors’ levels of technology use, ways their technology usage could be improved, if they were taught how to integrate technology, how they could be motivated, and if they were being offered opportunities to learn new technology.
Current technology usage and time spent. The first theme talks about technology used and that which worked best; the second discusses levels of usage. A noted theme in response to this question was that emails and Blackboard were used most often by all the professors to post syllabus/assignments. Some professors frequently used projectors during class instruction, but others did not. Abu stressed this point by stating,

Right; in the same ways that I just answered the first one; we use Blackboard outside the classroom. Students send emails and submit assignments through Blackboard. They get announcements through Blackboard… We also use projections in class, videos in class, we exchange emails… So, I can say we use it a lot.

Abu further clarified that although he used technology often, she did not allow the students to use any during class sessions to avoid distractions. On the other hand, Barbara used Blackboard primarily, and she believed that she spent 50% of her class and time using technology:

Well, as I described before, I use Blackboard primarily. And how much time do I spend using technology? I don’t know the answer to that question…If you look at my Blackboard, anything you need to know about my class is there. So, I spend a decent amount of time before the semester starts setting up the Blackboard courses. Although I don’t always use everything, I just like to have a lot of materials there. And then on a weekly basis, between posting things for my class,
reading what my students have written, and grading, which I also do on the computer, I would say that 50 percent of my time I spend using technology.

Talking about levels of their usage, Grace, Ford, and Mike expressed that they did use various technology tools such as email, PowerPoint, Videos, Prezi, and Google Docs throughout their instruction. They got assignments and grades using online collaboration tools and presentation software. In addition, they stressed that they saw the laptop that the institution provided as a good companion. With the aid of the projector, they usually created a sort of visual for the students to keep them focused. Often, they showed responses and used different websites to enhance instruction. Edna captured this point:

I use Blackboard, Kahoot, Jeopardy, Flickers, Prezi, Google Docs, Videos, and various Internet articles for my class almost on a daily basis. I am glad that I was born in a technology era; it’s so exciting to use it… Depending on the day, I could use it for the entire period or just for 5 minutes.

Carr and Edna had a different opinion; they acknowledged that technology is good, but that they preferred the traditional way of doing things. Carr stated, “At present I would continue to use textbooks and my notes for instruction in addition to Blackboard.”

Each professor described some variation of how often they used technology. Carr and Edna further clarified by saying that their use of technology was limited. Mike noted,
Technology is used pretty much throughout my class for different purposes.

Today, for example, we used the projector to practice grammar on Word, we used it to watch breaking news live on CNN.com, and to access Blackboard.

Although other professors rarely used technology, Mike expressed that there was hardly a week that he did not use technology. He furthered this point by saying,

It’s really hard to estimate how much time I spend using technology… It varies from week to week. But probably the most consistent is Blackboard because I have to put assignments on Blackboard, I respond to the students’ assignments in Blackboard. So, that can vary from an hour to 10 hours a week, depending upon what kind of assignment it is that they have to do.

From all indications, professors who were more comfortable with technology used it more often than those who were not.

The dynamics of the marketplace today require a focus on new approaches to instruction in higher education. For students to be successful, there must be creative solutions and innovation. The method of instruction that made students successful yesterday is no longer what will make them successful tomorrow in the world of technology. When asked about the various ways’ technology could be used, most participants confessed that they had never thought about the various ways technology could be used apart from their current usage. Three of the participants, Barbara, Carr, and Edna, expressed that rather, they would expect any new thing from experts in the field of technology to suggest new ways. Although Carr believed that there are so many ways
technology can be used for instruction, he was afraid it could be time consuming. His opinion was that faculty should share ideas of whatever new technology worked for them. Grace strongly believed that most professors simply used technology to make information accessible. She strongly suggested that technology should be more interactive between students/students and faculty/students. Grace thought that the possibilities were pretty limitless when it comes to technology that evolves daily. Like Grace’s observation, Abu suggested that technology should be used for group work in creating more visuals for students. He used technology practically daily, either for his class or personal research. Ford also mentioned that Skype could be used to conduct class to avoid missing school due to inclement weather. He noted:

I have heard certain of my colleagues say that they do have classes through Skype as a video session...That’s not something I will be comfortable with...But a lot of professors do use that, and I think that’s a good way to do it if you’re comfortable with that. If you can’t have class for whatever reason, like snow storm or something, then you will not like to miss the class; that would be an alternative option.

Barbara acknowledged using technology regularly and felt that it had become a part her. She loved technology, but she was uncomfortable with the distractions. She would rather see iPad-type tablets:

We have used some tablets here in the past, but we haven’t used iPad-type tablets. I guess that might be a way to go, like in-between the phone and the
laptop. Because the other thing about that is the eBooks: I think the eBooks are much more easily read on iPad-types of tablets rather than the laptops, and certainly the phone because it’s small. It’s not because I am old, and I have glasses; I think that even the students struggle with the small print.

Barbara also stated that although perfecting the e-Book would be her suggestion, the university with its competing needs would have to come up with what works best.

According to Ertmer’s (2010) theory, first-order barriers to technology integration are considered to be extrinsic to instructors and include lack of access to computers and software, insufficient time to plan instruction, and inadequate technical and administrative support. Based on the interviews, although lack of access to computers and software was not an issue, certainly insufficient time to plan instruction posed a problem that needed to be addressed. In addition, Grace, Ford, and Mike identified feelings of inadequacy, insufficient professional development, and lack of attending instructor-centered orientation to the lack of successful integration of technology into the curriculum. Ford captured this sentiment by saying, “Although orientations are being offered frequently by the institution, I feel that participation is the problem because technology skills need to be learned.”

On the other hand, Ertmer (2010) believed that second-order barriers are intrinsic to instructors and include beliefs about instructors, beliefs about computers, established classroom practices, and unwillingness to change. Eliminating first-order barriers may require securing additional resources and providing computer-skills training; confronting second-order barriers demands challenging one’s belief systems and the institutionalized
routines of one’s practice. All the professors interviewed maintained that the institution offers computer-skills training, but it was left to the individual to take advantage of it. A variety of questions concerning information technology and higher education remain unanswered. For example, “What is the effect of information technology integration in the English department of higher education?” As computer usage is becoming part of daily life, the shift to the demands of technology integration into classroom instruction increases (Calvin, 2012; Leftwich et al., 2010).

**Technology integration, motivation, and mandatory departmental training.**

Most of the participants expressed that they learned how to use technology by themselves and that Johnson University never formally taught them. Six of the nine professors interviewed—Carr, Dominique, Edna, Ford, Hank, and Grace—all agreed that they were taught merely how to use technology. Edna said, “Not really, I just use it as I see fit.” Barbara, on the other hand, mentioned: “I will say both. People have given me ideas over the years. We have an instructional designer. Every department has an instructional designer.” Dominique said that she attended the seminars that were offered by the university at a point. Abu learned technology in undergraduate education:

It was in my undergraduate education at the university. We had a class dedicated to technology, but that’s it. I only know this because of my undergraduate, not necessarily because somebody in the department—English department—told me that this is how you should do it.
A noted consensus here is that majority seemed to say that they learned much about technology before they engaged in the teaching profession.

According to some studies, the key enabler to access to information technology is finance. This finding is not true with this study. Some researchers have maintained that instructors who received professional development related to the integration of information technology were more effective in their use. According to Niederhauser and Perkman’s (2008) survey on the staff that had professional development, usage rates increased as their levels of self-efficacy improved regarding technology usage. In addition, 6 years later another study followed Niederhauser and Perkman’s study and found that teachers’ self-efficacy levels had remained consistent as indicated by the result of the study (Niederhauser & Perkman, 2008). Other empirical studies about barriers to information technology have revealed the need for professional skills. Ogwu’s (2010) analysis indicated that professors’ failure to use information technology in classrooms was due to lack of skills needed. Furthermore, Lin and Lu (2010) in their study revealed the need for professional development, a review of the content of the curriculum, and training on the use of technological devices. I observed a pattern among the participants’ responses about the motivation to use technology. Edna believed that incentive policies should be introduced. She also added that professors should be reimbursed if they purchase any technology for class use. Dominique and Mike were of the opinion that Johnson should have more information sessions on how to integrate technology. Interestingly, Carr seemed to prefer faculty salaries to be increased and more money given to the departments to get a liaison person who would be a source for current technology;
professors could be introduced to such a person who would teach what was relevant to their particular discipline.

Although the majority of the participants believed that technology is important in their instruction, they cautioned about academic freedom infringement. Dominique stated that she wanted more formal sessions: “I think they might be able to have more information sessions about how to use information technology.” She believed that the institution should make resources available for faculty that might not know where to get them. Abu had a unique approach to the idea of motivating professors to use technology:

I strongly support the idea of workshops, to have professors come and watch something you want to do in your classroom. You have the syllabus online, and then somebody would come in and show you, ‘Well, I know you have this, have you thought about integrating technology in this way?’ Some professors are just used to their old ways. Some are very hesitant to change their syllabus and the way they do things.

Grace said that she had not thought about this idea but strongly supported policies that would stimulate technology usage.

A noted theme in response to the issue of mandatory departmental training was that although it is true that university avails faculty the opportunity to learn about technology, there is no mandatory training. The teaching-learning Technology Center annually holds some seminar or workshops on fair use and copyrights. For Dominique,
although the university does not mandate technology training, optional training would not be her way to do it. She recommended mandatory training for both faculty and students so that they could all be comfortable using it. Barbara had a different approach from Dominique’s: She maintained that it would not be her idea to deny tenure to any faculty because of technology skills. But Barbara thought that faculty should value the use of technology. The majority of the professors were of the opinion that they would not like a mandatory departmental training. Barbara replied, “No, no, not that I know of. I mean, the only thing that I know that it’s important for everybody to be aware of is copyright law….” She added that the teaching, learning Technology Center annually organized seminars or workshops on fair use and copyrights and was diligent about it. She believed that there were general orientations at the beginning, but nothing was mandatory subsequently.

Carr, on the other hand, answered, “No, I don’t see anything. No, the only thing – there has been an attempt to make courses be universal in the sense of working with students with disabilities. There has been some training and policies around that beginning.” Abu, Hank, and Mike said that the university did not require mandatory departmental training, and that in terms of training, they offered seminars on how to use Blackboard, but not on how to integrate technology into specific instruction.

**Major Theme Three**

The third major theme addresses the importance and impacts of technology integration. The majority of participants expressed that technology is creating new and
different learning for both professors and the students. They agreed that there had been growth and improvement in the area of communication. Hank remarked:

Technology is a much faster, easier, and safer way of communicating with students. Definitely, the students love using technology to bring them closer to each other and with the materials. Most of my classes focus on discussion, not lecture, but they love having different ways to be involved.

Carr stressed this aspect by saying that Google Docs creates new and different learning experiences for the students. He said that students are able to collaborate and see immediately what other classmates are doing, which is profoundly different. Normally, he would have to write their sentences on the chalkboard, or the students would have to come up and write them, which would be more time consuming.

Mike also believed it to have a more immediate, clear impact on the students as they could see things change right in front of their eyes—that even if he did not use it frequently, the YouTube video that enabled him to project was useful. Abu, Grace, and Ford absolutely agreed that technology enhances learning. They also believed that it provides countless tools for learning and numerous accesses to multimedia. Mike had this to say:

Absolutely, yes. So, I have used it for a lot of things. I think the visual aids, especially, and the pictures or videos help a lot for them. It makes for a more engaging classroom, too; I think they have something to look at. And technology
can often be a big springboard to work from. Right! It helps with discussion; yes, absolutely.

Barbara was excited about technology as it kept her organized. She said that it helped because she was not a very good organizer with papers, books, and things, so she relied on technology, Blackboard especially, to keep her organized. She also admitted that she did not have good handwriting, so she contacted students by email. Those students were allowed to use their laptops in class, and they could take notes or Google information quickly. She also said that students posted their draft papers to Blackboard, and then they did peer review on Blackboard. The students read each other’s papers, wrote comments, replied back to their peers, and then talked together about the paper. This method provided permanent records of the peer review, and the writer could go back and look at it later and find everything still there. For the students, having the draft in Blackboard helps in the event that something happens to their computer. Blackboard is web based, so if their computer crashed they could go back to any computer and log into any Blackboard. That feature, Barbara said, was important to her. Blackboard is a good storage vehicle, too, that she felt helps her students get organized. It also helps them participate in the class in a way that they might not otherwise do, especially if they are quiet or shy. Because students can type their responses, it puts everybody on an even playing field. Barbara was also aware of some students who were not very fast typists but were less quick at handwriting, so at least Blackboard helps them. She also acknowledged that some students needed a little bit more time and tried to allow for that in class, or she would tell them if they wanted to finish their responses later, they could do that. Those are some ways that technology has changed for her.
Grace added that she was able to respond to students’ writing more quickly; they could get her comments at any time.

Ford rejoiced at the fact that with computers, there was no loss of a paper because the work would be there once it was saved. He remarked, “Even if students lose their computers, they can always go to Blackboard and see the comments.” Abu simply answered this question by saying, “I think so, because you know technology is all around us. I think as much I can implement it, it’s going to show them that they can use it in every subject field.”

**Old things in new ways.** I observed recurring themes among the responses as to whether technology allowed these professors to do old things in new ways. Certainly, the majority agreed that technology had allowed them, and their students, to do old things in new ways. Technology enabled them to collaborate with students and speed things up. An example they gave was a computer that is faster and has auto spelling replacing the use of a typewriter. Abu, Grace, Hank, and Ford strongly argued that technology had created new and different ways for them and their students. Hank had this to say: “I have used technology a lot, and certainly, it makes for a more engaging classroom.” Grace noted, “Students are in love with technology, and technology makes it easier to research for materials they need. Also, technology can often be a big springboard to work from.” Ford put it clearly:
Yeah, so just like the paperwork stuff, like submitting assignments. I grade through Blackboard, and they can get it straight through there. There is no exchange of papers…So I can tell them what assignment they have to do through Blackboard. Yeah, I think it streamlines everything.

Grace enthusiastically bought into this concept by stating: “It surely does! I’ve been teaching for 4 years, and technology has always played a role in my approach to student learning.” Barbara further concurred, “You know, when I was in college, I used a typewriter. I don’t have to use a typewriter anymore, of course.” She also stated that IT makes communication faster and easier as more and more people participate in social media. Abu was mostly exited that Google has taken over the use of encyclopedias, making things easier. Although Carr seemed to agree with Abu, Barbara, Ford, and Grace, he did feel that there is an over-reliance on technology.

Positive/negative effects of technology. When asked what the positive/negative effects of information technology usage have been, the overarching themes that English department faculty identified were that there has been more of positive than negative usage of technology in general. They believed that technology definitely streamlines everything. With fewer physical papers, things were much easier, Dominique remarked. Most participants believed that the negative effects were distraction, malfunction of hardware due to overheating, and the over-reliance on technology. But, the professors were of the opinion that being able to work with technology in a classroom or outside the classroom for learning is very important in the 21st century. Arguably, Abu said that the
negative effect is that technology is taking away students’ thinking. He maintained, however, that the positive effect is that it continues to build on their skills of looking for information. “They are able to open up different tabs, find key words, and do things more effectively and timely,” he noted. He said that later, these students can apply these skills to the different careers they choose.

In Ford, Grace, and Mike’s opinion, students are more engaged in the material. Technology gives them a solid break from discussion, which allows the students to come back refreshed. Grace saw the negative effects as that “students can easily be distracted when left on their own.” In line with the other eight interviewed, Carr said, “For the students who want to keep track of their grades all the time, having electronic grading is something useful.” He also noted that email between professors and students was a plus. However, Carr cautioned against over-reliance on technology as computers can crash or be lost. Grace wouldn’t have imagined carrying out any research without the aid of technology. Her only concern was that we wake up to new technology every day.

Dominique, along with the others, believed that technology is a great aid to communication. She said that it does streamline everything because there are fewer physical papers, which makes things easier. The downside, she said, will be the fact that it is not reliable, and that sometimes you can’t count on it. Although it happens very rarely, some students have used it as an excuse for not doing their work. Dominique said, “They will say: ‘Oh, it didn’t work for me.’ You know, you can’t really prove that. You can’t prove it because sometimes it doesn’t work.”
The professors also believed that technology is very efficient. Grace, on the positive side, said: “If we have snow day for school, I can conduct a class.” She also stressed that technology has given students more time to finish up their assignments as they can even submit them over the Internet.

In a nutshell, the interviews with the professors revealed considerable agreement that the applications and use of information technology demand that one has skills, knowledge, and the willingness to use IT. Social networking venues such as Facebook, Twitter, Foursquare, Instagram, and Classroom 2.0 are educational, and some scholars have believed that they foster interactions and collaboration among professors and students. Regrettably, none of those interviewed seemed to be using such networks.

I observed a pattern among the responses to this question. All the professors agreed that information technology is a critical component of higher education instruction. Abu, Ford, Grace, Hank, and Mike believed that through the use of computers, students receive feedback from the professor and deliver their work electronically. Like most of the participants, two of the professors, Edna and Dominique, shared that older professors were less likely to use technology because they were probably not used it. They felt that they were comfortable with the old ways they were used to. Similarly, Barbara shared:

For me, it has always been about reaching my students where they are, being where they are, helping them with technology that is comfortable to them. I personally believe that (pause) maybe it is not fear? To say this, I am sure there
are very good teachers who do not use technology, who are very engaging and help students learn. But I think that probably those teachers do a lot of technology outside of the classroom.

She further explained that some professors are still skeptical about using technology. She captured this idea by pointing out that “…some are hesitant to change.”

The faculty were asked if technology fosters interaction and communication among students and instructors (Blythe, Carpenter, & Sweet, 2015; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013). All nine professors agreed that the institution and faculty considered technology in the 21st century as vital. Abu, for instance, clarified this idea by saying: “This is demonstrated by the institution’s computer initiatives and the various seminars that the IT department organizes.”

Each professor described some variation of how important technology was to them. Several of the professors—Abu, Ford, Hank, Grace, and Mike—pointed out that technology creates new and different learning experiences for them and their students. Conversely, not all participants were convinced that it was creating new or different learning experiences. Carr remarked, “I believe we are in the era of technology, but I am not certain if it’s creating new or different learning experiences. I guess we need some studies to prove that fact.”

In conclusion, most of those interviewed observed with regret that professors used information technology only minimally for instruction despite an increase in equipment, training, and access.
Major Theme Four: Barriers, Intrinsic and Extrinsic

Breakdown: Barriers encountered using technology. The fourth major theme describes the barriers that English department professors encountered as they integrated technology into instruction. Relative to Etmer’s (2010) "first- and second-order barriers” argument, the participants were asked about their actual barriers to technology integration: “What are the reasons professors of English may not use technology regularly as an integral part of instruction?” Five interview questions (questions 16, 17, 18, 19, and 20) that were derived from this research question allowed the participants to express their views about the reasons/barriers they may not use certain applications or use technology regularly. Several of the participants pointed out that lack of stability of technology was the biggest barrier that could influence their technology integration.

Grace captured it in this way: “I grew up with technology, I love it…but it’s hard to catch up with it as you wake up to new things daily.” Most participants—Carr, Barbara, and Dominic, for instance—shared that the faculty lacked a good understanding about the capacity of making technology relevant to their specific subjects to help improve student achievement.

One other recurring pattern response about the barriers to technology integration was malfunction, having the Internet go down due to power outage or other technical issues. Barbara, like most of the participants, lamented,
One thing I can think of is, like, when you have an Internet problem, you know when the Internet is down, I can’t use my Blackboard in class. For example, a few weeks ago, there was a regional Internet problem, like a virus, some form of Cyber-attack, and so people lost their Internet.

Abu also noted, “There have often been times where, maybe, the sound to a video wasn’t working. So now that has taken away from what I have planned to do. Then I have to think of something else.”

Such malfunctions give students the advantage of making up stories when they are not able to finish assignments, Ford and Grace observed. Mike expressed that the Wi-Fi not working could be a major barrier. Barbara further captured this sentiment by saying, “Certainly, the physical limitations of the laptop or the problem you have, like if you drop it, whatever, or if you lose it, or it’s stolen… I mean, these things are great barriers.” Carr, like most of other participants, shared that another barrier encountered is that breakdowns are time consuming. In general, barriers enumerated were (a) dealing with breakdowns, or (b) some sort of minor frustration in dealing with students who have different abilities to work with technology.

Barbara, Carr, and Dominique, like most of the other participants, viewed professors’ busy schedules as not allowing enough time for mastery of technology usage. Similarly, Edna pointed out that rapidly changing technology could be a major barrier as professors struggled to keep up with it. Barbara, Carr, Hank, and Mike shared that another barrier to technology implementation could be inadequate IT staff, probably due to
financial reasons. They believed that hiring more IT staff and creating learning opportunities would enable faculty to acquire the desired skills. Mike summed it up: “If there is more staff, it won’t take long for them to respond to a problem.” Other participants believed that changing old mindsets about best instructional practices could be one of the largest barriers to effective implementation of technology.

**Cost not so much an issue.** This subsection includes the way that the participants described their experiences in terms of whether cost impacted the implementation. Dominique, Edna, Ford, and Mike indicated that cost could be an issue because technology could be expensive, and that the university did spend a lot. However, Abu and Hank felt that despite technology being expensive, they believed that it was being funded reasonably. Hank noted the only concern: “To improve on IT staffing, especially, would mean more money.” Some of the professors interviewed were of the opinion that all students, both undergraduate and graduate, should be entitled to laptops because they paid technology fees. Abu stated,

In this university, definitely not; because they do give the students laptops…I think it’s just a matter of somebody coming up with those resources and showing them to us. It really comes down to the professors’ motivation to use it.

Barbara was one of the participants who confessed that she wasn’t sure if cost impacted technology implementation. She admitted that cost has to do with everything but explained that there were opportunities to learn, though not mandatory. She did not feel
that cost might be the issue; but rather, it was a matter of the university not thinking technology was mandatory. Conversely, Carr felt that cost was an issue:

Yeah, of course, absolutely… there used to be some money put directly into faculty development. And for many years now, all the money… the only way to get that faculty development money is through the teaching-learning technology center, which seems very long.

Similarly, Grace shared, “Yeah, sure, and this comes back to the amount of money the University has to pay for certain licenses.” She further stated her concern about graduate students not having the same access to technology as the undergraduates because they were paying a lot of money. Grace believed that there were issues with that problem, which indicated that there were issues to cost because technology is expensive. Conversely, Edna pointed out her particular concern about how cost could limit her use of technology:

Absolutely; if something costs money to use, there’s a high chance that I will not use it. I don’t get paid enough to buy even more materials for my classroom, which is unfortunate. I wish we got a stipend or could be reimbursed by the department.

**Eliminating or controlling barriers.** When asked about the ways barriers could be eliminated or controlled, several participants in this study did not want an extensive use of technology, but rather a more practical technology that would be relevant to their fields. Carr, like most participants, emphasized,
Well, again, I don’t believe there should be more extensive use of technology. It should be more…The aim shouldn’t be on policies that are just, in general, to stimulate technology. It should be about where it is that information technology really makes some difference. And to help us with that whole process of evaluating information technology and thinking about which ones really make a difference.

Mike said,

In some ways they have to decentralize to get the expertise within the department. On the other hand, you need strong technology support so that I can call up to ITC, and they will send someone to me in the classroom. But there’s a difference between support given to already existing technology and development or exploring new technologies. So, there is a difference.

Sharing ideas with colleagues in the department about what has worked in their technology implementation and what could be improved is another way forward, he added.

Abu was one of the participants who described how he controlled his barriers as he used technology. If he received a post or email from a student, he sent them back as “read” or “received” so that the student would know that he got it.

Similarly, Grace mentioned a technique that could be used, called “Dino.” This is a program on the laptop for professors to monitor what students are doing on their laptops in class. However, she did not think it was practical for classroom usage because she
would be too distracted, looking at what everybody was doing, to teach them. Therefore, even though Dino might be a solution, it was not what she would personally use. Regarding the risk encountered with technology crashing, Grace thought, like the other participants, that it had to do with the maintenance level and with the university hiring more IT staff to have them available more quickly. She stressed that when there were issues with Pirate Net or Blackboard, sometimes it took IT a while to get it back up. Again, she observed that sometimes even when it was back, the quality was spotty and not really reliable. Sometimes the speed was slow, she explained.

Grace emphasized the need never to give up because of barriers; that she always figured out other ways to make it work. When presenting a paper, she would always take screenshots of what she wanted to show. That way, if there were no Internet in that room, or it went down, she would be able to proceed with her presentation. If the projector were broken, she would generally have some physical handouts or Plan A, Plan B. She was always thinking about the problems that could occur. Grace took pride in the fact that as she taught her students, they learned from her; she believed that they should be able to learn how to control eventualities. Conversely, Abu felt that barriers could not be eliminated; rather, one should practice strategies for overcoming them. Like Grace, he felt that being flexible was important, adjusting his lesson after encountering a malfunction.

Skills needed to implement technology

Regarding skills needed to implement technology into instruction, the majority of the professors felt confident that they had the basic skills needed. However, some believed that they could use more training sessions, especially on how to integrate technology into
their specific field. Carr complained that although it was true that he did have the skills, he would, however, like to know more about how to use technology, specifically in English class. Barbara was another participant who echoed:

I can say I can always learn more . . . there’re some things that I can probably do more with videos, you know. I don’t really do a lot with videos in my teaching. In fact, if I do show a video, it is probably going to be on a VCR DVD rather than VHS. I haven’t really gone into the online television, you know. Because there are a lot of tools out there, online television, Amazon, Netflix, and YouTube that you can use to teach. I have not really used them. . . .

Grace was one of the participants who shared that she has grown up using technology and would like to continue implementing it in her classroom. Conversely, Dominique stated, “Well, for current ones, I say I do. I have no idea about future ones. I mean generally, eventually, I am able to get the support I need for different technology. The school, you know, is helpful.” Similarly, Ford felt that there was always more to learn. Even though he could use technology proficiently, he could still learn new things. This is what he had to say: “There are always updates all the time, and so it does take a lot time to learn how to use them.”

When asked how higher education authorities should improve their policies to stimulate extensive use of information technology, the overarching theme identified was that these teachers wanted the faculty to have a comfort level for using technology in their teaching, and especially in the classroom. Although some acknowledged that they had acquired the skills, they would still like to see more theoretical conversation about the
value of using technology in the classroom. Dominique advocated for more education and making relevant resources available. Abu, Carr, and Barbara said that they had tight schedules and did not want an extensive use of technology. They believed that the policy needed to be about “where it is that information technology really makes some difference.” Barbara clearly believed, “It should not be a given that everyone is going to use technology or understand it or agree with it. So, I think those conversations need to continue to take place so that people can see the value.”

Hank also emphasized the need for workshops:

…having professors come and watch something others do in their classroom.

Things like putting the syllabus online, and then somebody coming in and showing you, ‘Well I know you have this, but have you thought about integrating technology in this way?’ In that way, some professors aren’t just used to their old ways. Some are very hesitant to change.

Similarly, Grace and Mike suggested having more information sessions on how to use information technology because many of the older professors did not know how to do so. Grace also believed that Johnson might want to have university-wide training sessions for professors, to teach them how to use technology in their specific classes. Conversely, Barbara cautioned that policy that might infringe on academic freedom. She was of the opinion that everybody should be able to do what they want to do in terms of teaching. Edna suggested that the institution should continue to encourage people to figure out how to use technology. However, she thought that the institution should value the use of technology in the tenure application and process but not penalize anyone for not using it.
Most participants indicated that malfunction was an issue that needed to be improved. A noted theme to this question, however, was that although it was true that the university offered opportunities for faculty to learn more about technology, not everyone took advantage of them because of the time factor. Again, some professors were of the opinion that the IT department needed more staffing. They believed that there were ample IT employees but said that these employees did not quickly address the issue at hand. Others felt that there should be some changes in trainings and implementation. Edna and Mike strongly recommended making technology less distracting for students. Dominique believed that much could be done to stabilize Blackboard and Pirate Net. Abu, Ford, and Mike suggested that professors should be given more resources such as regular orientation on how to integrate technology into specific courses. Grace suggested:

I think more staff, ironically in the IT area. Then they can go out to the faculty, go to meetings. They will come anytime you ask. Don’t get me wrong... if there were more of a way for them to be more of one on one or small group involved with faculty, that would make a big difference.

All nine participants in this research were asked to describe information that they and the institution might need to help improve technology implementation. Most participants thought that it had to do with both internal and external support. Almost all indicated that they wanted to know more about technology implementation successes, especially how they could be relevant to their subjects and improve student learning. Carr concurred: “Very much so. I mean, how technology is going to be used in Biology class
with 150 students is going to be totally different from the way I use it in the English classroom with just 15.”

Almost all participants believed that it would be helpful to get regular and ongoing training. Hank, on the other hand, wanted more information about the most recent, relevant, and current instructional uses of technology.

They should give money to every department to have someone be like a liaison person, who is someone who finds out the most current technology, who is given some money to learn how they might be relevant to particular discipline and then share, maybe try things out him/herself and share them with departments. That, to me, might be actually useful.

Regarding what types of opportunities for learning about technology they have been presented, a noted theme in response to this question was that opportunities for learning about technology had been presented to faculty. Whether the individual faculty used them or not was another question. Barbara mentioned, “I think that we have had a lot of emphasis placed on technology here. We have had a laptop initiative for many years, almost just as many years I have been here, which is going on 17 years.”

With regard to Johnson University policy, the professors were asked: “What emphasis is placed on information technology integration?” The majority of the participants remarked that the university had strong emphasis placed on technology. The laptop initiative, which had been in place for many years, set the ball rolling on technology. However, some were of the opinion that more could be done.
Barbara provided further insight by stating:

There are workshops all the time. There is training. I know these things all exist. Whether I use them or not is another question. There are workshops, training sessions, there are even online webinars and things like that, which have been provided, you know, that we are given access to.

It is important to note that this study was conducted from a limited sample of nine professors of a private university in New Jersey. Due to this small sample, caution is recommended when applying these findings to other universities or educational settings. Lastly, to protect the anonymity of participants, pseudonyms were assigned for the nine participants. These pseudonyms were: Abu, Barbara, Carr, Dominique, Edna, Ford, Grace, Hank, and Mike.

**Summary**

In Chapter IV, the findings from nine semi-structured interviews with English department professors regarding technology integration were reported. Semi-structured interviews were used as a guide to facilitate the process, and follow-up questions were asked when necessary. During the analysis of the research, the following themes emerged:

(a) Participants strongly proclaimed themselves to be using various technologies in their instruction. (b) All of the participants considered themselves as using different types of technology to a certain level. (c) The majority of participants expressed that technology was creating new and different ways of learning for both them and the students. (d) The recurring pattern responses about the barriers to technology integration were malfunction, having the Internet down due to power outrage, and other technical issues.
CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

In Chapter IV, the findings were presented and interpreted by answering the four research questions, describing the four major themes, and offering supporting quotes from participants’ narratives. This chapter provides an overview of the study, discussion of the major findings in the context of the relevant literature, recommendations for future research, recommendations for practice, and recommendations for policy.

Overview of the Study

I examined how professors in the English department integrated technology into their instruction at Johnson University. My goal was to help illuminate the barriers that professors may encounter while using technology. The findings presented in the previous chapter suggest that for the sample of nine professors I interviewed, they all used technology at different levels depending on their comfort zone.

The individual narratives of the nine English department professors contributed to a shared understanding about how professors integrated technology into instruction and the obstacles they encountered in the process.

The findings in this study also provided insight into the English department professors’ integration of technology and the barriers they encountered. Professors in the English department used various technology at different levels. Although some used it just in posting their syllabus on Blackboard and at limited times, others used it daily in their
instruction. Some professors limited their usage because they did not have the resources and knowledge required to maneuver with technology.

The literature about technology integration primarily described its importance. With the worldwide circulation of technology, it is expected to be utilized effectively in institutions of higher education and to offer many advantages. Findings in this study are in line with the literature that information technology serves as a tool that professors can use to help students to learn in innovative ways and be productive in the digital world (Fillion, Limayem, Laferriere, & Mantha, 2009; Whitaker, 2012). It can potentially influence the way that professors teach, and students learn (Kopcha, 2012; Orehoveracki, Bubas, & Konecki, 2009; Pitler & Hubbel, 2012; Sandier, 2010; Wankel & Blessinger, 2013; Whitaker, 2012). Technology can provide new ways for professors and students to collaborate, interact, and communicate (Hartshorne & Ajjan, 2009; Shihab, 2008; Wankel & Blessinger, 2013). Being taught by using the latest technological developments, students will be better able to compete in a society that is increasingly dominated by technology (Ertmer et al., 2013). Past findings in the literature demonstrated that professors’ personal lack of technological skills, inability to recognize the importance of technology in the economy, lack of administrative support, or unavailability of facilities created barriers to technology integration. Furthermore, the findings from this study confirm that suggested implementation barriers are varied and may range from the same factors as the literature review revealed (Griffin, Kilgore, Winn, & Otis-Wilborn, 2008; Pitler & Hubbel, 2012; Putnina, 2009; Surry, 2011). Most participants agreed with the studies that the application and use of information technology demand that one has
skills, knowledge, and the willingness to learn the technological skills that are necessary to prepare students with adaptive skills needed to survive and thrive in the digital age (Ash, 2013; Bates & Sangra, 2013; Pitler & Hubbel, 2012; Stratham & Torell, 2010; Van Gaasbeck, 1993). However, it is not known whether the faculties of institutions of higher education have such skills, knowledge, and willingness. In general, the professors’ views of technology integration/barriers documented in the literature and the findings in this study were closely aligned.

Summary of Findings and Discussion

Major Finding One: Types of Technology Used

The first question was one that invited English department professors to describe which technology they were currently using; all reported using technology of one kind or the other. Most participants reported using the laptop, the overhead projector, and connecting the projector to the laptop periodically. Some professors might have shown something on the Web or a Word document. The majority stated that they used email to communicate with students. One technology the participants also used in common was Blackboard. Some professors acknowledged using Google Docs, Dropbox, Blackboard, and occasionally video, Kahoot, Jeopardy, and different websites to enhance the instruction for their students. The information gathered in this study is mostly consistent with the findings from other studies conducted (Blythe, Carpenter, & Sweet, 2015; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013). These researchers maintained that at all levels of schooling, computer, and phone use can serve to foster interaction and
communication among students and instructors. The findings of this study differed from those found by Blythe et al. in that the English professors used newer technology such as Google Docs and Dropbox.

Another question invited the English department professors to describe which technology worked best for them. All the participants acknowledged that Blackboard was the technology that was most effective. The professors shared that Blackboard and email allowed them to communicate with students more easily. Overwhelmingly, they expressed their passion for the use of email. They discussed that through it, they could get in touch with students faster instead of just waiting till the next class. Some noted that although it was not the program they used most often, Google Docs was the most valuable one. Bates et al. (2013) revealed information that was like the findings of this research study regarding the importance of technology usage. When higher education uses technology for access to library information and delivery, for research and development, for teaching and learning, and as a means of communication, institutional missions and goals can be strengthened (Bates & Sangra, 2013).

**Major Finding Two: Levels of Technology Usage**

The second question focused on English department professors’ level of technology usage. The findings in this study provide evidence that all of the English department professors used technology to certain levels. In employing IT in their instruction, some professors considered using it more extensively than others, who just sent emails or posted on Blackboard. In general, these professors found that technology made it easier to communicate with students even when not in class. From the English department professors’ stories about how they currently used technology, a noted theme was that they
all used Blackboard to post syllabus/assignments, and they used projectors frequently in class instruction. Most professors spent decent amounts of time before the semester started setting up the Blackboard courses. And then on a weekly basis, between posting things for classes, reading what students had written, and grading, they believed that they spent 50% of their time using technology.

According to the literature on instructional uses of technology in higher education, a common conclusion has been that when professors engage in technology-assisted instruction, students gain lifelong learning skills necessary to succeed in our fast-changing world (Bates & Sangra, 2013; Bernard et al., 2009; Lawless & Pellegrino, 2007; Lee et al., 2011; Straub, 2009; Tamim et al., 2011; Van Rooij, 2009; Wankel & Blessinger, 2013; Williams & Jones, 2014). The findings from this study did not concur with this belief. Although some professors used technology throughout class for different purposes, several participants stated that their use of technology varied, and that at times it could be for just a short period. The professors used Blackboard most consistently for posting assignments or announcements and responding to the students’ assignments. For some, that usage could vary from an hour to 10 hours per week, depending upon what kind of assignment they gave. English department professors spoke about the use of Google Docs, which they believed had changed the way they taught. Though they did not use this program on a weekly basis, when they did use it, it took half an hour. Some professors considered it as an aid to help students work collaboratively on projects.

Based on a stereotype, some participants confessed that they had never thought about the various ways technology could be used apart from their current usage. Most
participants expressed that rather than initiate new technology usage, they would expect experts in the field of technology to suggest new ways. In general, they believed that there were many technologies to be adopted from their current technology because so many are developed every day. The majority were concerned that exploring new technology could be time consuming. In addition, the information learned in this research study is consistent with the findings revealed in a study conducted by Pitler and Hubbel (2012) regarding implementation as related to technology integration. The results from the study indicated that instructional use of technology is still not yet as widespread as expected in higher education. Most participants would prefer for colleagues to share their ideas about whatever new technology worked for them. In some participants’ opinions, most professors at the time simply used technology to make information accessible. According to some participants, technology should be more interactive between students/students and faculty/students. Other suggestions were that technology should be used for group work and online classes, and to create more visuals for students who are in love with social media. Specifically, Skype was mentioned as a tool that students even overseas can use to defend their thesis; or the professor could conduct a class via Skype to avoid missing one due to inclement weather.

In response to being asked if Johnson University formally taught them how to implement technology, the majority of the participants expressed that they learned how to use technology by themselves without formal lessons. They said that while in undergraduate education at the university, they were offered a class dedicated to
technology, but most participants indicated that they were taught merely how to use technology. Others just used it as they saw fit. A few remembered being formally taught as well as exploring things for themselves. The professors stated that there was an instructional technology designer in the institution in every department. Seminars were also being offered regularly, and some participants took advantage of them. A noted consensus here was that majority said that they learned much about technology before engaging in their teaching profession.

The information gathered in this research study is consistent with the findings revealed in a study conducted by Surry (2011) regarding technology integration barriers. According Surry’s research, the absence of technological pedagogical content knowledge, theoretical foundation and conceptual framework, teacher training, and resources are intimated as roadblocks to incorporating technology in class instruction.

All of the participants in this study shared their opinions regarding the motivation that Johnson expected and whether they would appreciate mandatory policies. Most professors suggested that incentive policies should be introduced to encourage technology usage. Furthermore, the teachers noted that those professors who went out of their way to purchase supplementary technology materials for class use should be reimbursed. They also expressed that Johnson should have more formal sessions on how to integrate technology. Interestingly, others would prefer faculty salaries to be increased rather than spending more on technology. One professor suggested that more money be given to the departments to hire a liaison to serve as a resource for current technology, someone who
would teach what was relevant to a particular discipline. The professors also believed that the institution should make the resources available for faculty who might not know where to get them. A few suggested a period of sharing among professors. In this way, those with new ways of integrating technology that worked for them could share with others. Some participants believed that professors can just get used to their old ways. They agreed that despite this opportunity of sharing, some could still be hesitant to change the way they did things. Participants admitted that they hadn’t thought about this topic, but they strongly supported policies that would stimulate technology usage.

Because some participants strongly supported policies that would stimulate technology usage, they were asked as to whether they would recommend mandatory departmental training. All participants stated that there was no mandatory department training at Johnson University. They noted that the teaching-learning Technology Center annually held a seminar or workshops on fair use and copyrights. They also stated that there had been an attempt to make courses universal in the sense of working with students with disabilities. They added that there was also some training and general orientation around the beginning of semester. Specifically, the university offered training seminars on how to use Blackboard, but not on how to integrate technology into specific instruction. However, for other participants, although the university did not mandate technology training, optional training would not be their way to go about it. They recommended mandatory training for both faculty and students so that they could all be comfortable using technology. Others were vehemently opposed to this idea and suggested that professors should be encouraged but not mandated. They would not like the institution to
make a policy to withhold tenure because a faculty did not use technology. It was the
general view of participants that all professors should value the use of technology.

Major Finding Three: Creating New Learning Experiences

In response to the third research question (How does technology integration impact
instructional practices offered in the English department to enhance learning?), all the
participants in this study shared that technology created new and different learning for
both professors and the students. They agreed that there had been growth and
improvement in the area of communication, and that technology made things much faster,
giving easier and safer ways of communicating with their students. The English
department professors noted that their students loved using technology and that through
Googling, they often found the materials they needed for their research. Furthermore, with
the aid of technology such as Blackboard, Skype, YouTube, or email, they could engage
in discussion with the students outside the classroom. In sum, technology gave them the
opportunity to become involved with their students and learn ways of doing things
differently. Specifically, Google Docs created new and different learning experiences for
the students, the professors confirmed. They clarified this point by saying that through the
use of technology, students are able to collaborate and see immediately what other
classmates are doing, which is profoundly different. Normally, professors would have to
write their sentences on the chalkboard, or the students would have to come up to the
chalkboard to write them, which would be more time consuming. Technology has made
things more immediate, clear, and has great impact on the students as they can see things
change right in front of their eyes. The English department professors were convinced that
technology provides countless tools for learning and numerous accesses to multimedia. Stressing the advantages of technology, some participants pointed out that it kept them more organized. Information stored on Blackboard or on a drive could more easily be located than when stored on a piece of paper that could get lost. Furthermore, for professors whose handwriting was not very legible, their writing could easily be recognized when typed. Other ways that the professors viewed technology as a learning aid was that their students could use their laptops in class during lectures and take notes quickly on Google Docs. Using technology, students could post their draft papers to Blackboard and do peer review on the program. The students could read each other’s papers, write comments, reply to their peers, and then talk together about the paper. This method provides permanent records of the peer review; later, the writer could go back and look at it, and everything would still be there. For the students, saving a draft in Blackboard helps avoid the problems of losing it. In the event of a computer crashing, at least they would have posted the draft to Blackboard, and they could start over from there. Blackboard is web based, so students can go to any computer and log into Blackboard, which is convenient.

Another important aspect the professors mentioned is that technology helps students participate in the class in a way that they might not otherwise do, especially if they are quiet or shy. The faculty pointed out that students can type their responses, which puts everybody on an even playing field. About students who are not fast typists, some of the participants expressed frustration. One professor acknowledged that some students need a little bit more time, and she tried to allow for that in class; she would tell them that if they wanted to finish their responses later, they could. Most of the participants agreed
that because technology is all around us, implementing it will help the students use the skills in every subject field.

Most of the participants believed that technology had allowed them and their students to do old things in new ways. They noted that technology had enabled them to collaborate with students and speed things up. An example they gave was the use of a computer that is faster, has auto spelling/autocorrect replacing a typewriter. In this way, if one was writing an article, it would be expedited. Two professors strongly believed that their frequent use of technology made for a more engaging classroom. They also noted that students were in love with technology, which made it easy to find the resources for materials they need. They considered technology as a big springboard from which to work. The professors also concurred that as more people participate in social media, technology use would be very necessary to stay up to date.

The entire English department faculty interviewed acknowledged that there has been more positive than negative usage of technology in general. They believed that technology has streamlined everything, and that with fewer physical papers, things were much easier. The professors believed that being able to work with technology within or outside the classroom is very important in the 21st century. Through it, they could continue to build their skills in looking for information, the ability to open up different tabs to find key words and doing research more effectively. Later, the students could apply it to the different carriers they choose. Professors noted that the students were more engaged in the material. Technology gave them a solid break from discussion and allowed
them to come back refreshed. The participants pointed out that another advantage of technology is that students who want to keep track of their grades can easily do so through electronic grading. Email between professors and students was also a plus, they maintained. One professor could not have imagined carrying out research without the aid of technology. Stressing its positive side, another explained that if there was a snow day for school, classes could be conducted online. She also noted that technology gave students more time to finish up their assignments as they could submit them over the Internet late at night instead of dropping off hard copies of the papers at the professors’ office.

About malfunctioning technology, most of the participants had a sense of frustration and shared that they had encountered occasions when technology did not work. They viewed it as being unreliable. When the Internet failed, students used it as an excuse for not doing their work. They would say it didn’t work for them, but there was no way of proving that because in truth, sometimes it doesn’t work. The professors also added that technology could be a distraction, and that there was an over-reliance on it. Arguably, one professor negatively posited that it took away students’ thinking.

All the participants in this study shared the fact that they used technology in their instruction. However, there were different levels to which they used it. Although some used it extensively by interacting regularly with students, others merely posted their syllabus on Blackboard. One teacher shared that older professors were less likely to use technology because they probably were not used to it and felt more comfortable with the old ways to which they were accustomed. Another professor shared that it had always
been about reaching out to her students at their level and helping them become more comfortable with technology. She further explained that some professors were still skeptical about using technology because they were hesitant to change.

All nine professors agreed that the institution and faculty considered technology to be vital in the 21st century as demonstrated by the university’s computer initiative and the various seminars that the IT department organized. Rosser and Javinar (2009) made a case for institutions encouraging technology integration and providing support for professors to implement it. All the professors described some variation of how important technology was to them. Several (but not all) pointed out that technology has created new and different learning experiences for them and their students. This statement is in conformity with the literature (Blythe, Carpenter, & Sweet, 2015; Pitler & Hubbel, 2012; Wankel & Blessinger, 2013).

**Major Finding Four: Barriers, Intrinsic and Extrinsic**

In response to the fourth research question (“What are reasons/barriers professors of English may not use technology regularly as an integral part of instruction?”), I found that the English department exhibited intrinsic barriers. This finding is consistent with studies that pointed out the barriers to technology integration (Etmer, 2010). The majority of the participants in this study maintained that lack of stability of technology was the biggest barrier that influenced its integration. There were times when the Internet was down due to power outage, technical issues, virus, or cyber-attack. Some participants also observed that the physical limitations of the laptop, e.g., losing it or its being stolen, could
also serve as roadblocks. Another barrier was the fact that technology could be time consuming. A minor frustration lay in dealing with students who had different abilities in working with technology.

At least one participant was irritated with competing schedules and school calendars that did not allow enough time for mastery of technology usage. Similarly, another pointed out that rapidly changing technology could be a major barrier as professors struggled to keep up with it. The English department professors also pointed to the issue of inadequate IT staff as another barrier to technology implementation and blamed it on probable financial reasons. They noted that hiring more IT staff and creating learning opportunities would enable the faculty to acquire the desired skills.

Other participants believed that changing old mindsets about best instructional practices could be one of the largest barriers to effective implementation of technology. Although the majority of the participants expressed the desire to integrate technology, most shared that they lacked a good understanding of making technology relevant to their specific subjects to help improve student achievement.

English department professors in this study expressed their opinions on whether cost impacted the implementation of technology. The majority of those I interviewed indicated that cost may have been an issue because technology could be expensive. They noted that the university did spend a lot. An example would be the amount of money the University has to pay for certain licenses or Internet services. However, several participants felt that despite technology being expensive, they did believe that it was reasonably being funded. Addressing the concern about improving on IT staffing,
especially, would mean more money. Some were of the opinion that both undergraduate and graduate students should be entitled to laptops because they paid technology fees. One professor said that in the past, money used to be dedicated directly toward faculty development, but for many recent years all the money has had to go through the teaching and learning Technology Center, which seemed to be a very long process. Another professor’s particular concern about cost was purchasing materials needed for her class. She said that if something cost money to use, there was a high chance that she would not use it. Her suggestion was to get a stipend or reimbursement by the department.

When asked about the ways barriers could be eliminated or controlled, the majority of participants in this study wanted smooth technology integration. Several participants did not want an extensive use of technology but rather a more practical technology that was relevant to their fields. They said that the aim should not be on policies that stimulate technology in general; it should be about “where it is that information technologies really make some difference.” An overwhelming majority of the English department professors discussed the need to decentralize and to get the expertise within the department. They also stressed the need for a strong technology support system so that a teacher could call ITC, which would send someone to the classroom immediately. They complained that when there were issues with Pirate Net or Blackboard, sometimes it took IT a while to get it back up.

Some participants also suggested sharing ideas with colleagues in the department about what has worked in their technology implementation and what could be improved. One professor said that if he got a post or email from a student, he sent them back as
“read” or “received” so that they knew he got it. Another mentioned a technique called “Dino” that allowed professors to monitor what students were doing on their laptops in class. She noted a personal distraction from looking at what everybody was doing rather than teaching them, so she did not see Dino as practical for her.

One professor emphasized the need never to give up because of a barrier, noting that she could always figure out other ways to make technology work. For example, when presenting a paper, she would always take screenshots of what she wanted to show, so if the Internet in that room went down, she would be able to proceed with her presentation. If the projector was broken, she would generally have some physical handouts. She was always thinking about the problems that could occur and took pride in the fact that her example modeled the way that her students could learn to control eventualities. Yet another professor felt that barriers could not be eliminated but said that one should practice strategies for overcoming them. Flexibility was important in adjusting her lesson after encountering a malfunction.

Regarding skills needed to implement technology into instruction, a majority of the participants felt confident that they had the basic skills needed. However, they wanted more training sessions, especially on how to integrate technology into their specific field. They also noted that they could always learn more. In general, they seemed to say that while it was true that they did use technology, there was always room to learn new things. Technologies frequently require updates, and it takes a lot of time to catch up with them.

An overwhelming majority of the English department professors stated that they
would like to see faculty improve their comfort level on how to use technology in their classroom teaching. They would have also liked more theoretical conversation about the value of using technology in the classroom. They advocated for more education on technology and making relevant resources available. Most participants lamented that they had tight schedules and did not need the extensive use of technology; that they needed to know where information technology would really make a difference. Some of the professors observed that it should not be a given that everyone was going to use technology, understand it, or agree with it. They said that those conversations needed to continue to take place so that people could see the value.

Stressing the importance of technology in the 21st century, some participants emphasized the need for workshops in which professors would come and watch what others did in their classroom. They considered collaboration among staff to be important. If faculty members shared whatever technologies worked best for them, some professors might break away from their old ways. The faculty suggested that Johnson might schedule university-wide training sessions for professors to teach them how to use technology in their specific class. Regrettably, some participants noted that some professors might be very hesitant to change; yet others cautioned that a mandatory policy that might infringe on academic freedom and suggested that the institution continue to encourage people to figure out how to use technology at their own pace. The professors believed that everybody should be able to do what they wanted to do in terms of teaching. Although they agreed that the institution should value the use of technology in the tenure application and process, it should never to penalize anyone for not using technology.
The English professors in this study agreed that for effective implementation of technology, the malfunction issue needed to be addressed. They mentioned that the IT department needed more staffing, observing that the current employees often did not quickly address the issue at hand. Participants suggested more resources for professors, regular orientations on how to integrate information technology into specific courses and making it more convenient for professors to have IT staff attend to them in a timely manner.

All participants felt that the effective implementation of technology depends on both internal and external support. The English department professors indicated that they wanted to know more about technology implementation successes, especially as related to their subject areas. They believed that it would be helpful to receive regular and ongoing training about the most relevant and current instructional uses of technology. Some were of the opinion that money should be given to every department to hire a liaison who would find the most current technology for a particular discipline and then share the knowledge.

In conclusion, all participants agreed that opportunities for learning about technology had been presented to the faculty. The IT department often organized workshops, training, and online webinars because Johnson University placed great emphasis on technology integration. The institution has had a laptop initiative for more than 17 years, which began the drive toward technology. Whether the individual faculty used the laptops or not was another question. However, some were of the opinion that more could be done in regard to technology integration.
Summary

Listening to the stories from the English department professors about how they were currently using technology revealed the fact that they were all using technology of one kind or the other up to certain levels. In general, they found that technology made it easier to communicate with students even when not in class. Most of the participants expressed that they had learned how to use technology by themselves, and that Johnson University had never formally taught them. All participants stated that there was no mandatory department training at Johnson University, that the teaching-learning Technology Center ran some seminars or workshops voluntarily. Some participants would have rather seen a required training. Several participants did not opt for the extensive use of technology but rather for a more practical technology that was relevant to their fields. With regard to malfunction of technology, a majority of the participants had a sense of frustration, sharing that they had encountered occasions when technology did not work. They gave intrinsic and extrinsic reasons as to the barriers to integrating technology.

Recommendations for Future Research

The findings of this study suggest four areas requiring additional research.

1. This study included nine professors of English department from Johnson University, each having their own unique technology integration levels. A suggested future study would be to compare and contrast the experiences of professors who are at the same institution but are from a variety of departments. The goal would be to explore the perceptions of technology integration in other disciplines.
2. English department professors in this study spoke broadly about their use of Blackboard, which is a requirement of the institution. Only a few mentioned their use of other technology. In a follow-up study, I would ask more targeted questions about specific technology and other details about how they are using it to interact with students. Hints of some of these answers came up in this study, but they were not significant enough to include in the findings.

3. It is recommended that a mixed-methods qualitative and quantitative model be used in a future study to uncover a deeper level of information regarding the perceptions of technology integration.

4. It is recommended that a quantitative comparative study be conducted that compares the effectiveness of technology integration for professors who have been trained in technology integration versus those who have had no training experience in that field.

5. Another suggested future study would be in the graduate program instead of undergraduate.

**Recommendations for Practice**

Based on this research study, the following points are recommended for practice:

1. Institutions should continue to provide ample professional development opportunities for staff members related to the topic of technology integration. However, staff must also participate in technology-related professional development to lead the technology integration efforts effectively.
2. Professors should communicate their vision as it relates to technology integration, taking advantage of the ample training that the IT department provides, eliminating outdated technology, and planning for future technology acquisition.

3. Institutional administrators and professors should communicate the contents of the school’s technology plan. Doing so will assist administrators in providing a vision that is based on something tangible. Further, professors and other stakeholders should be invited to participate in the creation and revisions of said technology plan to gain more input and help foster a shared vision.

**Recommendations for Policy**

Based on the findings of this research study, the four following points are recommended for policy:

1. Policy makers should oversee the creation of a 4-year technology plan for the institution. However, this plan should be a fluid, living document that goes through changes and amendments as time goes on, much like what happens to technology. Policy makers should not create a 4-year plan, allow the plan to come to fruition, and then create a new 4-year plan. Instead, they should work with administration, professors, and other stakeholders to ensure that this plan is being executed, while also maintaining an awareness of the nature of technology’s constant changes.
2. Policy makers should establish a budget that is forward thinking and will allow for the acquisition of new technologies. This goal is important as funding plays a pivotal role.

3. Policy makers should increase funding for professional development related to technology integration. To implement these tools and strategies most effectively, professors often need follow-up training. Without both the initial and follow-up training, technology integration initiatives may not be as successful as they could or should be. Further, policy makers should develop strategies that create free or reduced cost professional development opportunities for all professors. More money should be given to departments to get a liaison who would be a resource for current technology and introduce it; someone who would teach what is relevant to the discipline where the technology would make a difference.

4. Policy makers should increase funding to hire more IT staff so that they could be more efficient to carry out their duties in a timely manner by being available to professors when they are needed.
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APPENDIX A

SOLICITATION LETTER

Benjamin Zirra
Seton Hall University
College of Education and Human Services
Jubilee Hall, 407
400 South Orange Avenue
South Orange, New Jersey 07079-2685

Letter of Permission to Solicit Volunteer Participants

Dr. Mary M. Balkun, Ph.D.
Chair, English Department
Seton Hall University
College Arts and Sciences
Fahy Hall, 362
400 South Orange Avenue.
South Orange, New Jersey 07079-2685

Dear Dr. Mary Balkun,

Please allow me to introduce myself. My name is Benjamin Zirra, and I am a Doctoral candidate at Seton Hall University in the Department of Education, Leadership, Management and Policy program within the College of Education and Human Services.

I am currently attempting to complete my doctoral dissertation, and my particular area of interest is usage of technology in post-secondary education. Specifically, I am interested in researching the level at which English department professors use technology/the barriers they may encounter in integrating technology into instruction as it changes every day.

I am requesting formal permission to ask for anonymous volunteers so that I may continue my qualitative research study. With your permission, I will collect qualitative data utilizing one-to-one interviews with your staff. I wish to assure you that all qualitative data will be kept strictly confidential and will be stored in a locked fireproof cabinet within the researcher’s home upon completion. I am hoping that you will grant me the opportunity to obtain this valuable, relevant qualitative data to complete my research.

For me to proceed further under the specific guidelines set forth by the Seton Hall University
Instructional Review Board, I am required to have a signed permission document from the Chair of the English Department stating that I may seek volunteer participants. Once permission is officially granted, I will then be able to request for volunteers so that I may continue my qualitative research study. I am enclosing a self-addressed stamped envelope for your convenience to place the granted written permission document to be returned to me by United States Postal Service and be part of my dissertation.

If you need further information concerning this request, please contact me on my personal email at benzirra@yahoo.com.

Thank you for your consideration,

Sincerely,

Benjamin Zirra
Doctoral Candidate, Seton Hall University
APPENDIX B

REQUEST FOR APPROVAL

REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

All material must be typed.

PROJECT TITLE: Technology counts: Assessing barriers to integrating technology into instruction in a private university in New Jersey

CERTIFICATION STATEMENT:

In making this application, I (we) certify that I (we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I (we) further acknowledge my (our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.

RESEARCHER(S): Benjamin Zirra

DATE: 02/22/2016

**Please print or type out names of all researchers below signature. Use separate sheet of paper, if necessary.**

My signature indicates that I have reviewed the attached materials of my student advisee and consider them to meet IRB standards.

RESEARCHER'S FACULTY ADVISOR: Dr. Joseph Statar, Ph.D.

DATE: 02/22/2016

**Please print or type out name below signature**

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the June 2016 meeting.

The application was approved -- not approved ___ by the Committee. Special conditions were ___ were not ___ set by the IRB. (Any special conditions are described on the reverse side.)

DIRECTOR, SETON HALL UNIVERSITY INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH

DATE: 7/29/16

Seton Hall University
3/2005
Dear Rev. Zirra,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled “Technology Counts: Assessing Barriers to Integrating Technology into Instruction in a Private University in New Jersey.” Your research protocol is hereby approved as revised through expedited review. The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form and the stamped original Consent Form. Make copies only of this stamped document.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary J. Runge, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Joseph Stetar
APPENDIX D
INFORMED CONSENT FORM

INFORMED CONSENT FORM

Researcher Affiliation

The researcher, Benjamin Zirra, is graduate student at Seton Hall University, College of Education and Human Services, working on a doctoral dissertation in the Department of Education, Leadership, Management and Policy for the degree of Ph.D.

Purpose and Duration of Research

The purpose of the study is to explore several patterns of barriers that may be preventing professors from integrating technology. Specifically, this study will examine responses from faculty at Seton Hall University, a private university in New Jersey that may or may not be using technology for instruction. This study will add to our knowledge about the barriers professors encounter in implementing technology, which may help facilitate implementation. Discovering the barriers to integrating technology will help in addressing the roadblocks, thereby pointing to ways for improvement. The expected duration of interview of the English department professors will be limited to sixty minute session conducted by the researcher.

Procedures

Once written acknowledgement is received, stating English department professors willingness to participate in the study, The chair of the department will be contacted in order to describe the process, time and date for interview with the professors. The procedure for the interview is that the researcher will meet with the professors at an agreed location for a single sixty-minute interview. Twenty identical questions will be utilized in each interview. Data will be recorded and transcribed from interviews only upon written consent.

No aspects of the research procedures are experimental in nature.
Instrument

Questionnaires or surveys will not be utilized in this study. An interview of the English department professors will consist of the researchers asking eighteen open-ended questions pertaining to the opinions and experiences of those participants. The open ended interview questions will explore barriers professors may encounter while integrating technology into instructions.

Voluntary Nature

There is no anonymity for the one to one interviews conducted in this study. The identities of the interview participants will be known only to the researcher. However, the information gathered through the interviews will be used solely for the purpose of analysis and the confidentiality of the interview will be preserved. No identifying information will be shared with any other individual without the interviewee's express consent. To maintain accuracy and confidentiality, each interview participant will be identified by a coded system.

Confidentiality

All information that will be shared will be confidential and will be only used for purposes of the research study. The identities of all participants will be kept strictly confidential. No mention of any participant's name will be included in the dissertation. If any circumstance ever required that other confidential information be disclosed, the researcher is required to have the participants' permission in advance.

Confidential Records

All raw data gathered from responses will be confidential. The researcher, peer reviewers and his faculty advisor/mentor will have access to review the raw data including recordings, logs, notes or other research materials that may contain confidential information. Only the researcher will do all the transcriptions of taped interviews. Sending transcribed interviews by email is always subject to hacking.
All raw data will be safely stored on USB memory and safely stored locked in secure locker for a period of three years upon completion of research study and then to be destroyed.

Risks or Discomforts

There are no anticipated risks or discomforts from participation in this research study.

Benefits

A direct benefit of this research is that it may afford participants the opportunity to reflect upon their technology usage and could result to the desire of doing more with technology.

A potential benefit of the knowledge expected to result from this study is that professors in this institution and others will better evaluate their present usage of technology and change ways of implementing technology. As technology changes, so must the way it is being thought with change.

Compensation/Medical Treatments for Injured Participants

There is no risk of injury for participants and no compensation will be offered.

Alternative Procedures

There are no alternative procedures or courses of treatment that might be advantageous to the participants as a result of this study. There is no risk of injury for participation in this study.

Contact Information

For any pertinent information regarding the research, or participants rights, please use the following contact information:

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(973) 275-2561 (fax)

Permission to use Audio Tapes
All interviews will be taped using audio tape only. Participants’ written signature in a space provided on the last page of this form indicates permission to audio tape the interview. During any audio taping, all participants will be identified by a code number. Only the researcher and his faculty advisor/mentor will have access to, and listen to the audio tape recordings. All audio tapes will be transcribed solely by the researcher. All audio tape recordings will be safely stored in a locked fireproof cabinet in the researcher’s home for a period of three (3) years upon the completion of the research study and then be destroyed.

Copy of Informed Consent Form
All participants will be provided with two (2) copies of this informed consent form before participation begins. Please sign and date both copies. Return one (1) copy to the researcher, and keep the other copy for your records. The researcher will retain a copy of this document for at least three (3) years following the conclusion of this study. Signing this informed Consent Form acknowledges that I have read and understand the material above and agree to participate in the research study.

Participant (Please Print your Name)

Signature of Participant
Date

College of Education and Human Services
Department of Education, Leadership, Management and Policy
Tel: 973.761.9397
400 South Orange Avenue, South Orange, New Jersey 07079-2685
I give my permission for this interview to be audio taped according to the aforementioned provisions.

Participant (Please Print your Name)

Signature of Participant

Date

College of Education and Human Services
Department of Education, Leadership, Management and Policy
Tel: 973.761.9897
400 South Orange Avenue. South Orange, New Jersey 07079-2685
APPENDIX E

INTERVIEW QUESTIONS

The following interview questions were asked.

1. Which type of technology do you use in your instruction?

2. How are you currently using technology, and how much time do you spend using technology?

3. Is technology creating new and different learning experiences for the students?

4. Is technology allowing you/students do old things in new ways?

5. Which technology do you consider as working best for you?

6. With regard to XYZ policy, what emphasis is placed on information technology integration?

7. What difficulties have you encountered in using information technology?

8. In your opinion, what have been the positive effects with information technology usage? What have been the negative effects?

9. In your opinion, do all professors use technology? If not, why are other professors not utilizing information technology in their instruction?

10. What other way do you think technology can be used apart from the present usage?

11. In your opinion, what issues need to be improved on how information technology is being implemented?

12. Were you taught how to integrate the technology into your lessons, or merely how to use it?

13. In your opinion, how can XYZ University motivate integration of information technology intensively?
14. Does XYZ University require mandatory departmental training about the standard policies and practices concerning information technology?

15. With what types of opportunities for learning about technology have you been presented?

16. In your opinion, does cost play a role with the policy and procedures concerning the implementation of information technology?

17. Do you think that you have all the skills needed to implement technology in your instruction?

18. In your opinion, how should higher education authorities improve their policies to stimulate extensive use of information technology?

19. What are some of the barriers you encounter using technology?

20. How can you control or eliminate the barriers, if any, that you experience?

Opening statement of the interview: Thanks for participating in my dissertation study. For about 45 to 60 minutes, we will engage in an open interview conversation to help better understand professors’ beliefs about barriers that can influence their technology integration into instruction. As a reminder, I will ask 20 semi-structured, open-ended questions. Please feel welcome to respond freely and informally to all of the questions. Now, let’s begin.

Closing statement of the interview: As we conclude today’s interview, I wish once again to thank you enormously for your time. Please know that you are welcome to email me with any additional comments or statements you might want included in the interview. It’s been a pleasure talking with you. So long!