Identifying faculty motivations to increase technology use in pedagogy at a midwestern university

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Identifying faculty motivations to increase technology use in pedagogy
at a midwestern university

by

Cynthia Lynn Fleagle

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education (Educational Leadership)

Program of Study Committee:
Daniel C. Robinson, Major Professor
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Denise A. Schmidt-Crawford
Margaret C. Torrie

Iowa State University
Ames, Iowa
2012

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DEDICATION

To my loving mother,

Joyce Ann Baker

For always caring, loving, and believing in me.

You were right.
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ABSTRACT

The purpose of this qualitative study was to make meaning of the experiences of six faculty members at Midwestern University and how they make sense of the combined use of technology, pedagogy, and content within the classroom. One way this study expanded the available knowledge base and filled the gap in the literature was to provide a voice for the six faculty members. Through interviews and document analysis, meaning was connected for the six faculty members. The focus during data analysis was the phenomenon of the use of technology in pedagogy practices of the faculty members. Focusing on the phenomenon supported the process of making meaning of the combined experiences of the six faculty members interviewed.

Listening to the faculty members make meaning of how the benefits and barriers of using technology in the classroom drive their decision making about technology integration provided needed insight into the following themes that emerged; technology and pedagogy are inseparable, pedagogy and technology, benefits and barriers of using technology and support.

Suggestions for practice would be to have faculty meet with a learning technology specialist to determine individual technology needs of faculty using the TPACK Technology Tool first. Learning technology specialists then need to select faculty who are lone rangers to begin teaching technology-by-design projects in their classes so other faculty will see successful technology adoption across campus by their colleagues that could spread a diffusion of innovation.
CHAPTER 1

INTRODUCTION

Background of the Study

We regard master-craftsmen as superior not merely because they have a grasp of theory and know the reasons for acting as they do. Broadly speaking, what distinguishes the man who knows from the ignorant man is an ability to teach, and this is why we hold that art and not experience has the character of genuine knowledge (episteme)—namely, that artists can teach and others (i.e., those who have not acquired an art by study but have merely picked up some skill empirically) cannot. (Aristotle, as cited in Shulman, 1986, p. 8)

Due to a revolution in technology, the door has opened wide to a variety of teaching and learning tools that can lead to new teaching and learning environments that were not possible in the past. The biggest challenge for today’s colleges and universities is finding a way to change the campus environment so it better accommodates and promotes the use of new technologies. Technological advances have opened up and redefined the core concept of the delivery of learning. Coupled with the change in students’ characteristics and expectations, this has created a strong impetus for change (Hagner & Schneebeck, 2001).

Higher education faculty are feeling the pressure from both above and below them, from administration reacting to market forces to students who demand new forms of learning presentations. In addition to the growing pressure faculty are feeling to adapt to their new circumstances, faculty autonomy presents a considerable challenge (Hagner & Schneebeck, 2001).

Changes occurring today in academe are similar to those occurring in other industries. Demands on higher education institutions have become more diverse than ever. In addition, faculty members are more diverse, as are the many students they teach. Today, professors seek greater flexibility in both their professional and personal lives, and they seek deeper
collegial relationships in the workplace. Another change that has significantly impacted faculty is that tenure-track positions are now being replaced with renewable contracts and fixed-term positions.

There are four major forces that are affecting higher education and its faculty: (a) fiscal constraints, (b) calls for accountability, (c) growing enrollment and increasing diversity of students, (d) and the rise of the information age, with a continual expansion of new technologies. Given the significant changes affecting colleges and universities, and the changes in the demographics of faculty and faculty appointments, faculty may not be engaged in business as usual (Gappa, Austin, & Trice, 2007). Institutions will need to find incentives that encourage instructors to innovate in teaching, otherwise their investment in technology will be wasted (Bates & Sangra, 2011).

Universities and colleges are resilient. They have remained unchanged for over 800 years. Their original role—to prepare men for the ministry and to transmit culture to future generations—has been replaced by new roles. Now institutions prepare students for different professions, to critique society, and to produce knowledge. Since the founding of Harvard College in 1636, some 3,500 postsecondary institutions have come into existence in the United States (Blackburn & Lawrence, 1995). Although core missions are still relevant in today’s universities, radical change is needed in the design and delivery of teaching if institutions are to adequately respond to the challenges that face them. The integration of technology to transform teaching and learning is a key strategy for such change (Bates & Sangra, 2011).

Most scholars agree that traditional methods of technology training for faculty, mainly workshops and courses, are ill-suited to provide the deep understanding that can aid
faculty in becoming intelligent users of technology for pedagogy (Brand, 1997; Milken Exchange on Educational Technology, 1999; National Center for Education Statistics [NCES], 1999). Good teaching using technology requires that the educator understand the interrelationships among content, pedagogy, and technology.

Statement of the Problem

The influence of increased technology use by faculty in the classroom, both to aid in teaching classroom content and to improve pedagogy, is a field where more information is needed. How do faculty members make meaning of the complex interplay of the three areas that affect their daily work: content, technology, and pedagogy? How do faculty work through the complexities of keeping current in their respective disciplines (content they teach), acquiring better teaching and learning strategies (pedagogy), and increasing their personal knowledge of ways to use the Internet, computers, and digital tools to aid in teaching their students (technology)?

Purpose of the Study

The purpose of this study was to discover how faculty make meaning of integrating content, pedagogy, and technology within the classes they teach. Also, the study explored how students use technology today. It was the researcher’s intent to gather information that could help other faculty, staff, senior administrators, technology specialists, and IT managers to inform their decision making regarding implementing effective, sustainable faculty development programs that benefit the entire faculty, the students, and the institution. Successful technology integration by motivated, confident faculty will improve the quality of teaching, increase access to learners, and improve the cost-effectiveness for universities and colleges.
Research Questions

1. How do faculty members make meaning of the complex relationship of the three knowledge bases: content, technology, and pedagogy?
2. How do faculty members make meaning of how students use technology for educational and personal use?

Significance of the Study

Higher education is well into a new revolution—a transformation characterized by changes both deep and wide, which affect not only the academy itself, but also its faculty. Practically every aspect of the life of an academic is driven by a host of interrelated developments: dazzling technological advances; globalization that continues to permeate academic boundaries; rapidly increasing numbers of tertiary students worldwide; unprecedented expansion of proprietary higher education; a blurring of the distinction between public and private or independent higher education; and innumerable entrepreneurial, market-driven initiatives from within and without the campus (Schuster & Finkelstein, 2006).

Distinctive contributions made to society over time by universities are overwhelmingly the work of faculty through their teaching and scholarship endeavors.

Academic work is different from many other kinds of work. It defies the establishment of clear boundaries. The job of a good scholar and teacher is to continuously learn; and that is a tall, continuing order. (Schuster & Finkelstein, 2006, Kindle Location 1647)

The challenges facing today’s faculty place new expectations and require new skills and abilities. In addition to their usual teaching and administrative functions, faculty are expected to increase their use of technology in the classroom, help generate resources for the
university, and create an environment that values diversity. Faculty will need easy, continuous access to professional development activities that help them acquire those skills.

It is the hope of the researcher that this study will inform IT departments, technology specialists, instructional designers, faculty members, and administrators in higher education about what motivates faculty to increase use of technology in their pedagogy and encourage institutions to develop sound, sustainable faculty development programs that are relevant and useful for faculty now and in the future.

**Theoretical Frameworks**

**Technological Pedagogical and Content Knowledge (TPACK)**

The framework for this study was based in part on TPACK to understand that teaching is a highly complex activity that requires many types of knowledge. Teaching requires complex cognitive skills as it occurs in ill-structured, dynamic environments (Leinhardt & Greeno, 1986; Spiro, Coulson, Feltovich, & Anderson, 1988; Spiro, Feltovich, Jacobsen, & Coulson, 1991). Similar to expertise in other complex domains, including medical diagnosis (Lesgold, Feltovich, Glaser, & Wang, 1981; Pople, 1982), chess (Chase & Simon, 1973; Wilkins, 1980), and writing (Hayes & Flower, 1980; Hillocks, 1986), expertise in teaching is reliant on access to highly organized systems of knowledge (Glaser, 1984; Putnam & Borko, 2000; Shulman, 1986, 1987). There are many types of knowledge systems that are essential to teaching, including knowledge of student thinking and learning, and knowledge of subject matter.

In the past, knowledge bases of teacher education focused strictly on the content knowledge of the teacher (Shulman, 1986; Veal & MaKinster, 1999). In the 1990s, teacher education shifted its focus mainly to pedagogy, emphasizing general pedagogical classroom
practices independent of subject matter and often at the expense of content knowledge (Ball & McDiarmid, 1990). Figure 1 is a visual representation of the separated way that people look at teacher knowledge as two circles that are independent of each other.

Figure 1. The two circles representing pedagogical and content knowledge. From “Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge,” by P. Mishra and M. J. Koehler, 2006, Teachers College Record, 108(6), p. 1020.

What teachers need to know in order to integrate technology into their teaching has received a great deal of attention (International Society for Technology in Education, 2000; NCES, 2000; National Council for Accreditation of Teacher Education [NCATE], 2001; U.S. Congress, Office of Technology Assessment, 1995; Zhao, 2003). It is apparent, however, that the primary focus should be on how the technology can be used (Carr, Jonassen, Litzinger, & Marra, 1998; Mishra & Koehler, 2003).

Different approaches toward teacher education have emphasized one or the other domain, focusing on either knowledge of pedagogy or knowledge of content. In 1986, Lee Shulman, a Harvard professor and educational psychologist, claimed that content (teachers’ subject knowledge) and pedagogy (how one teaches or the art of teaching) were being treated as mutually exclusive domains. The consequence of excluding one or the other is that teacher education programs either focus on subject matter or pedagogy. Shulman (1986)
argued that having knowledge of subject matter and psychological strategies was not sufficient for obtaining the knowledge of good teachers. Shulman also stated that “pedagogical content knowledge” (PCK) is the content knowledge that deals with “the ways of representing and formulating the subject to make it comprehensible to others” (p. 9). For teachers to be successful, they have to confront both issues (content and pedagogy) simultaneously by embodying “the aspects of content most germane to its teachability” (p. 9).

The emphasis on PCK in this framework is based on Shulman’s acknowledgement that pedagogical content knowledge is of special interest because it identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organized, represented and adapted to the diverse interests and abilities of learners, and presented for instruction. (p. 8)
Since 1987, the notion of PCK has permeated the research that deals with teacher education and the subject matter of education (Cochran, King, & DeRuiter, 1993; Shulman, 1987).

Connecting the two circles represents Shulman’s contribution to the scholarship of teacher knowledge. In Shulman’s (1986) own words, this intersection contains within it the most regularly taught topics in one’s subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations—in a word, the ways of representing and formulating the subject that make it comprehensible to others. (p. 9)

Technologies afford a range of representations, analogies, examples, explanations, and demonstrations that can help learners understand subject matter better. Teachers will have to do more than learn how to use the currently available tools; they will also have to
learn new techniques and skills as current technologies become obsolete (Mishra & Koehler, 2006).

The relationships between content (the actual subject matter to be taught), pedagogy (the art of teaching), and technology (both commonplace, like whiteboards, and advanced, such as digital computers with projectors) are complex and nuanced. Decisions about using technology constrain the content to be covered and change the nature of possible representations of that content. These decisions have a ripple effect by defining or constraining instructional moves and pedagogical decisions. In contrast to the simple view of technology (Figure 3), the framework in Figure 4 emphasizes the connections, interactions, affordances, and constraints between and among content, pedagogy, and technology. In this model, knowledge about content, pedagogy, and technology is central for developing good teaching. Rather than treating them as three separate knowledge bases, this model emphasizes the complex interplay of the three together.

*Figure 4. Pedagogy technological content knowledge. The three circles, content, pedagogy, and technology, overlap to lead to four more kinds of interrelated knowledge. From “Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge,” by P. Mishra and M. J. Koehler, 2006, *Teachers College Record, 108*(6), p. 1025.*
Technological pedagogical content knowledge (TPCK) is a form of knowledge that goes beyond all three components (content, pedagogy, and technology). True technology integration means understanding and negotiating the relationships between the three components of knowledge. A teacher capable of negotiating these relationships represents a form of expertise different from and greater than the knowledge of a disciplinary expert (say a mathematician or a historian), a technology expert (a computer scientist), and a pedagogical expert (an experienced educator). Effective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between all three components (Mishra & Koehler, 2006).

The traditional view of the relationship between the three components argues that content drives decision making, with pedagogical strategies and technologies then following. Rarely are things that simple, especially when technology is concerned. The phenomenon of the invention of the Internet can be seen as an example of a technology whose arrival caused educators to think about core pedagogical issues (Mishra & Koehler, 2006; Peruski & Mishra, 2004; Wallace, 2004). In this model, it is the technology that drives the types of decisions made about content and pedagogy. Considering any of these three knowledge bases in isolation from the others represents a real disservice to teaching (Mishra & Koehler, 2006).

The inclusion of a new technology for teaching suddenly forces one to confront basic educational issues because the new technology reconstructs the equilibrium among all three. An example would be when a faculty member develops a course for online instruction for the first time. The newness of developing the course forces the instructor to think about all three factors and the relationships between them. Adding new technology is not the same as
adding a module to a course. It raises fundamental questions about pedagogy and content, and can overwhelm the most experienced instructors (Peruski & Mishra, 2004).

Most scholars in technology agree that traditional methods of technology training for faculty, which are workshops, courses, and conferences, are ill-suited to produce the “deep understanding” that a teacher needs to become an intelligent user of technology. Merely knowing how to use technology is not the same as knowing how to teach with it (Mishra & Koehler, 2006).

**Diffusion of Innovation**

Everett Rogers’s (2010) theory on the diffusion of innovation is recognized as the baseline work in the area of technology. An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. Newness in an innovation does not necessarily mean new knowledge. Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, where messages are concerned with new ideas. These include both planned and spontaneous ideas.

Diffusion scholars have long known that an individual’s decision about an innovation is not split second. Instead, it is a process that occurs over time that consists of a series of actions and decisions. The sequential stages in the process of innovation decision making are as follows:

1. *Knowledge* occurs when an individual . . . is exposed to an innovation . . . and gains some understanding of how it functions.
2. *Persuasion* occurs when an individual . . . forms a favorable or unfavorable attitude toward the innovation.
3. *Decision* occurs when an individual . . . engages in activities that lead to a choice to adopt or reject the innovation.
4. *Implementation* occurs when an individual . . . puts an innovation into use.
5. *Confirmation* occurs when an individual . . . seeks reinforcement of an innovation-decision already made, or reverses a previous decision to adopt or reject the innovation if exposed to conflicting messages about the innovation. (Rogers, 2010, p. 145)

**Summary**

According to Schuster and Finkelstein (2006), “The changes underway [in higher education] . . . amount to a . . . restructuring of academic appointments, academic work, and academic careers” (p. 362). The reconfigurations are revolutionary and amount to nothing less than a new order for the academic profession. . . . [Issues] reshaping higher education and the faculty press relentlessly: a globalized, knowledge-based economy; . . . privatization and marketization forces that now permeate higher education as never before; and stunning new modalities for information technology that continually reinvent the means of teaching and learning. (Schuster & Finkelstein, 2006, p. 362)

One thing is for sure: The future condition of the faculty is crucial to the well-being of the academy. Without an adequately functioning faculty, the academy would not be the academy, but something entirely different. If faculty development initiatives are to succeed and keep current, administrators need to understand what motivates faculty to participate in faculty development, because faculty participation is not only recommended, it is imperative. Investing in the faculty and in the academic workplace becomes a university’s most critical choice.

**Definitions of Terms**

The following were defined for use in this study:

*Blackboard:*

The Blackboard Learning System is a virtual learning environment and course management system developed by Blackboard Inc. Features include course management, customizable open architecture, and a scalable design that allows for integration with student information systems and authentication protocols. It may be installed on local servers or hosted by Blackboard ASP Solutions. Its main purposes
are to add online elements to courses traditionally delivered face-to-face and to develop completely online courses with few or no face-to-face meetings. (‘Blackboard Learning System,’” 2012)

*Content* is the subject matter that is to be taught/learned. The content covered in a high school science class has very different content from that of a graduate studies course in computer science (Koehler, Mishra, & Yahya, 2007).

*Faculty development* encompasses three key areas of effort: *personal development* (self-reflection, vitality, and growth), *instructional development* (course- and student-based initiatives), and *organizational development* (program, departmental, and institution-wide efforts; Lewis, 1996). Faculty development, educational development, and professional development are often used interchangeably in research, and they are for the purpose of this study.

*Information and Communications Technologies (ICT)* can be thought of as the raw materials of a knowledge-based economy, in that they provide the means for creating, storing, analyzing, transferring, reproducing, and transforming information (Bates & Sangra, 2011).

*Millennial students* are those who were born between the 1970s and 1990s and generally have an increased use and familiarity with communications, media, and digital technologies.

*Net generation (Net Gen) students* are digitally literate, connected, multitasking individuals who are likely to be visually oriented learners. Net Gen students and millennials are often used interchangeably (Roberts, 2005).
Pedagogy includes the process, practice, and methods of teaching and learning, including the purpose(s), values, techniques, or methods used to teach, and strategies for assessing and evaluating student learning (Koehler et al., 2007).

Pedagogical content knowledge focuses on the connections and interactions between three elements: pedagogy, content, and knowledge. This would include representation and formulation of concepts, pedagogical techniques, knowledge of what makes concepts difficult or easy to learn, knowledge of students’ prior knowledge, and theories of epistemology (Koehler et al., 2007).

Technology broadly encompasses older technologies such as books and chalk but also more advanced technologies such as the Internet, digital video, and the different modalities they provide for representing information (Koehler et al., 2007).

Type I behavior is a way of thinking and an approach to life built around intrinsic, rather than extrinsic, motivators. It is powered by individuals’ innate need to direct their own lives, to learn and create new things, and to do better by themselves and their world.

Type X behavior is fueled more by extrinsic desires than intrinsic ones and concerns itself less with the inherent satisfaction of an activity and more with the external rewards to which the activity leads.

Technological content knowledge involves understanding the manner in which technology and content are reciprocally related to each other. Teachers need to know not only the subject matter of what they teach but also the ways in which the subject matter can be transformed by applying technology (Koehler et al., 2007).
Technological pedagogical knowledge emphasizes the existence, components, and capabilities of various technologies as they are used in teaching and learning settings (Koehler et al., 2007).

Technological pedagogical content knowledge (TPACK) argues that technology integration in teaching and learning requires understanding the dynamic, transactional relationships between the three knowledge components: technology, pedagogy, and content. This knowledge is different from and greater than that of a disciplinary expert, a technology expert, and a pedagogical expert (an experienced educator; Koehler et al., 2007).
CHAPTER 2
LITERATURE REVIEW

While reviewing the literature, it became obvious that the researcher could not write about faculty without addressing the changes in higher education and the increasing, ever-changing student population. One impacts faculty roles as much as the other. All three rely on each other. All three are significantly impacted by the use of technology.

This research begins with a narrative of how the professoriate has evolved and changed roles since the first tutors of the 1600s. While faculty roles have changed, they have also become increasingly complex and include many new duties to manage in addition to teaching. Today’s faculty meet the demands of teaching, research, creative endeavors, community involvement, professional service, committee membership, and academic decision making in positions that may or may not be tenure track, in institutions that face reduced federal and state funding, severe budget cuts, resource constraints, and accountability pressures.

The next section addresses factors that motivate individuals and motivating factors for postsecondary educators who teach both online and face to face. There is a gap between what science knows and what business does. Daniel Pink (2009) explained how the old “carrot-and-stick” approach does not work anymore, and just like higher education teaching practices, businesses and educators need to rethink how they motivate their employees in the 21st century. That faculty motivation lies in autonomy, mastery, and purpose, not extrinsic rewards.
The final section gives more information about Rogers’s (2010) theory of diffusion of innovation and the four main characteristics of the theory: the innovation, communication channels, time, and a social system.

In conclusion, this chapter discusses the diversity of students today and their technology expectations in the classroom. Included are a few examples of exemplary campus technology initiatives that have been implemented successfully through the aid of faculty development in postsecondary education institutions across the United States.

**History of the Professoriate**

During the 17th and through the first half of the 18th century, teaching staffs of American universities were composed entirely of tutors, usually young males, often no more than 20 years of age, who had just received their baccalaureate degrees and were preparing for careers in the ministry (Morison, 1936). The main responsibilities of the tutors included guiding a single class through the 4-year curriculum. Their role was parental-custodial as well as pedagogical in nature. Tutors spent almost every hour of the day with their students, not only in the classroom, but also during study time, meal times, and they even slept in the same chamber as some. The tutors were responsible for the moral, intellectual, and spiritual development of their pupils (Schuster & Finkelstein, 2006). The tutorship during this period functioned more as a “revolving door,” whether at Harvard or at Yale, Brown, Dartmouth, or Bowdoin. Prior to 1685, very seldom did a tutor remain with a class through all 4 years. Only 6 of 41 tutors during this period had remained at Harvard for more than 3 years (Schuster & Finkelstein, 2006).
By the latter half of the 18th century, staffs of tutors began to be supplemented by a small “cadre” of permanent faculty: the first professors. At the onset of the 19th century, 200 professors served in 19 American colleges (Schuster & Finkelstein, 2006).

There were three distinct differences between the tutors and the professors. The professors were appointed to a particular subject area, such as natural philosophy, divinity, or a foreign language. They were also usually older, by 5 to 10 years, and more experienced with postbaccalaureate preparation in theology, law, or medicine. Lastly, the professors stayed on, which meant they were relatively permanent. A professorship was usually fulfilled at a single institution, quite often at one’s alma mater. Another characteristic was that professors were typically “nonexclusive,” meaning they were primarily teachers but sometimes held second occupations in their fields of expertise (Carrell, 1968).

The 19th century marked the beginnings of specialization in teaching. That meant faculty were hired to teach in a particular field, rather than lead a cohort through an entire baccalaureate course (Carrell, 1968). Also introduced was the notion that academic staffs should have formal preparation through graduate education. Until the last quarter of the 19th century, such training was only available in European universities (Carrell, 1968; McCaughey, 1974). Due to the length of time it took professors to earn graduate degrees, it no longer made sense to treat their positions as transitory, but instead as a lifelong career commitment.

Several environmental pressures created a shift in the evolving professionalization of the academic career. The first was the growth of enrollment; for instance, Yale doubled its enrollment in just 20 years. Another factor was the competing occupational church-related
careers—the most important sector competing with colleges for would-be faculty members (Burke, 1982; Rudolph, 1956).

By the mid-19th century, the rise of science and the tremendous growth of scientific knowledge gave way to the development of the academic disciplines, thereby distinguishing the amateur from the expert, which spawned systemic research and graduate education (Berelson, 1960; Oleson & Voss, 1979; Veysey, 1965; Wolfle, 1972).

Once graduate education and disciplinary specialization took hold, it was not long before the establishment of the major societies—for example, the Modern Language Association in 1883, the American Historical Association in 1884, the American Psychological Association in 1892, and on and on (Berelson, 1960). Together, these developments provided American higher education with the capacity to produce graduate-trained specialists and to create opportunities for the specialists it thereby produced.

In the 1860s and 1870s, institutions such as Dartmouth and Williams began basing appointments on discipline-related credentials and began hiring individuals directly out of European and American graduate schools (Finkelstein, 1983).

There were two significant, interrelated shifts in professors’ institutional careers during the last quarter of the 19th century. The first was the emergence of the new academic ranks to full professorship. By the 1870s and 1880s, at many institutions the junior roles came to function as feeders to the full professorial ranks. This led to the disappearance of tutorship at some institutions and a transformation into instructorship at others (Schuster & Finkelstein, 2006).

In 1915, 18 luminaries from seven of the leading universities chartered the first national organization of professors—the American Association of University Professors.
(AAUP). This new organization created a newfound sense of collective professional self-consciousness and a sense of colleagueship or fraternity among members. Edwin R. A. Seligman of Columbia, one of the AAUP founders, stated,

Loyalty to our institution is admirable, but if your institution for some unfortunate reason stands athwart of the progress of science, or even haltingly follows that path, we must use our best efforts to convince our colleagues and the authorities of the error of their ways. (as cited in Schuster & Finkelstein, 2006, Kindle Location 954)

The AAUP was highly restrictive in who could be included. Membership was limited to “recognized” scholars with at least 10 years of experience in the professoriate. By 1920, the base had broadened to include professors with 3 to 4 years of experience; nonetheless, the association realized that its membership constituted a small, exclusive group of professionalized scholars. Initial membership included 867 research-oriented full professors. After just 7 short years, about 4,000 faculty members, which constituted 6% of the professoriate, were AAUP members (Schuster & Finkelstein, 2006).

John Dewey tried to direct the new organization toward developing professional standards and away from intervention into faculty-administrative disputes at the institutional level. However, the AAUP membership clearly thought the association’s primary purpose should be to function as a grievance committee and assist individual faculty in internal campus disputes. During the early years, the association was inundated in the number of grievances brought to its attention (Hofstadter & Metzger, 1955).

Today the AAUP remains alive and well. On the AAUP website it states,

The AAUP has been protecting the rights of faculty and other higher education professionals for ninety-five years. Through assistance and advice to individuals, state and federal lobbying, amicus briefs, support for collective bargaining, and other means, the AAUP helps shape American higher education and ensure higher education’s contribution to the common good. (American Association of University Professors [AAUP], n.d., n.p.)
Full- or part-time faculty, and also graduate students and retired faculty, are allowed entry into the association. While the organization’s core functions have not changed much over the last decade, its membership has become much more diverse and inclusive.

By the mid-1940s, the graduate research model as we know it was the professoriate’s claim to specialized expertise. In recognition of the disciplinary expertise that faculty work encompassed, the faculty were relieved of their disciplinary responsibilities. This led campuses into the next movement, which became known as the student personnel movement (Schuster & Finkelstein, 2006).

The student personnel movement began in the 1920s and gained momentum in the 1930s and 1940s. The movement caused campuses to develop infrastructures that were dedicated to addressing the nonintellectual, nonacademic needs of students. This was in response to the tremendous growth and diversification of students. New offices were created, such as dean of students, counseling, student health services, career development, and so on (Berelson, 1960).

While some responsibilities were alleviated for faculty due to the student personnel movement, a new enhanced role in campus decision making was introduced with the creation of faculty governance structures. Faculty governance came to existence at several leading institutions (Harvard, Princeton, and Pennsylvania) around the mid-18th century, closely paralleling the emergence of the professorship. By the second half of the 19th century, faculty governance structures had developed considerable authority at Yale, Cornell, and Wisconsin (Schuster & Finkelstein, 2006).
Though precedent may have had faculty prerogatives in some key areas of governance, other areas, such as curriculum, educational policy, and especially faculty personnel decisions (appointments and promotions) and the selection of academic administrators, were not clearly established at most institutions; not infrequently, faculty input in these areas was ignored (Cowley, 1980).

The 1930s saw a blossoming of faculty committee structures on most campuses. In 1939, Haggerty and Works noted that two fifths of the faculty employed in institutions within the North Central Association were on average sitting on at least two committees. Around two thirds of those committees focused on administrative functions, and a minority concentrated on educational policy.

All during the 19th century, the professoriate had worked without provisions for job security, as mere employees subject to the will of presidents and trustees. Many full professors were on indefinite appointments, meaning that no length of term was specified in the contract. Indefinite appointments were never the equivalent of permanent appointments, either in intent or law, and individuals in such appointments could be dismissed at any time (Metzger, 1973).

These developments culminated in a report set forth by the AAUP Committee on College and University government that put forth five overarching principles for faculty participation and institutional governance. Together, the principles mandated a role for faculty in selecting administrators; in the writing, developing, and control of educational policy; and in the appointment and promotion process. The AAUP document had as its premise that “faculty were not hired employees to be manipulated by the president and trustees, but were academic professionals whose role involves teaching and contributing to
the direction and major decisions of the institution” (Orr, 1978, pp. 347-48). Junior faculty had no such set of procedures, nor did they have a timetable for attaining an indefinite appointment. A faculty member could be dismissed after 15 to 20 years of service, without reason or even a hearing. Even at institutions with a tradition of faculty power, such as Yale and Wisconsin, such dismissals happened again and again (Schuster & Finkelstein, 2006).

After 14 years of negotiation, the AAUP put forth its historic 1940 Statement of Principles on Academic Freedom and Tenure, which articulated the concept of permanent faculty tenure. The statement was designed as a means for regularizing the flow of tenure decision making, by stipulating a 6-year probationary period, and created procedures to ensure due process on nonreappointment. By this time, the AAUP had gained widespread institutional acceptance and had sufficient stature. Also, most institutions had finalized the system of academic ranks to provide the infrastructure for career progression (Orr, 1978).

From 1940 to 1969, there was a period of unprecedented growth for American higher education and its academic staffs. College faculty doubled between 1940 and 1960, from around 120,000 to 236,000 (Harris, 1972), and almost doubled again in the next 10 years, from 1960 to 1970, increasing from 236,000 to 450,000 (Dearman & Plisko, 1980).

The Faculty Role Today

As Cahn (1986) observed, “Few institutions other than colleges and universities permit their members the latitude so much a part of the professor’s life” (p. 3). Today faculty responsibilities are divided between three main categories: teaching, research/scholarship, and service. Teaching is considered the staffing of for-credit courses in the neighborhood of 6 to 15 hours weekly. Research has different meanings in different institutional settings and in different academic fields. The service role is diverse and not always well understood
It includes participation in department or governance committees; being faculty advisor to a student club or organization; participation in off-campus activities designed to market on-campus academic programs; local community service to the state, regional, or national professional association in one’s discipline; and/or service on an accrediting team or association. Faculty may also consult on specific projects with outside organizations as well as run a limited private practice involving their discipline (Schuster & Finkelstein, 2006). Massy and Zemsky noted, “Even when most faculty use their time to meet professional and institutional obligations, the academic ratchet still shifts output from undergraduate education toward research, scholarship, professional service, and similar activities—a process that we have termed ‘output creep’” (as cited in Arum, 2011, Kindle Location 4658).

Within the academy, faculty productivity is also an issue for faculty, particularly for the ones who are tenure track and at institutions where faculty are expected to conduct research. Currently, there is a higher bar to winning tenure than in the 1970s and earlier. The higher bar is motivated by internal or institutional demands, as well as by external or legislative ones. The elimination of age-based mandatory retirement, due to federal law in the 1980s, has contributed to institutional concerns about being “overtenured,” so standards for awarding tenure have been raised. Also, many faculty members, particularly at research universities, are pressured not only to publish more, but also to generate grant funding to help pay their salaries. While the general public and state legislators may not view grant funding and scholarship as important because they do not increase the number of students and courses taught, these performance expectations are ones some faculty must meet to be successful or considered productive within their institution. This tension between institutional views of
faculty productivity and those of the general public and legislators illustrates the importance of clarifying what is meant by faculty productivity and determining how to measure it (Townsend & Rosser, 2007).

**Motivating Factors for Higher Education Faculty**

A decade ago, Schifter (2000) noted that motivating factors for faculty to use technology in distance education ranked from high to low were (a) personal motivation to use technology, (b) opportunity to develop new ideas, (c) opportunity to improve teaching, (d) opportunity to diversify program offerings, and (e) greater flexibility for students. The top five for faculty not teaching distance education courses were (a) develop new ideas, (b) technical support provided by the institution, (c) personal motivation to use technology, (d) intellectual challenge, and (e) overall job satisfaction.

Inhibiting factors for faculty not using distance education, ranked from high to low in importance, were (a) lack of technical support provided by the institution, (b) lack of release time, (c) concern about faculty workload, (d) lack of grants for materials and expenses, and (e) concern about the quality of courses (Townsend & Rosser 2007).

One of the most investigated intrinsic motivators is the teacher’s attitude or personal motivation toward computers. There have been a couple of attitude scales, including the Computer Attitude Scale and the Computer Attitude Measure, that have found a correlation between the instructor’s attitude toward computer technology and the extent of its use in class (Berner, 2003; Francis, 1994; Revell, 1999; Simonsen, 1995; Woodrow, 1992).

In 1999, Edward Deci and two colleagues reanalyzed nearly three decades of studies on extrinsic and intrinsic motivations to confirm their findings (Pink, 2009). Careful consideration of reward effects reported that tangible rewards tend to have a substantially
negative effect on intrinsic motivation. People use rewards hoping to motivate a person but in so doing undermine the person’s intrinsic motivation toward the activity (Pink, 2009).

Edward Deci and Richard Ryan, in the late 1970s, developed the self-determination theory (SDT), which argues that humans have three innate psychosocial needs: competence, autonomy, and relatedness (Pink, 2009). When those needs are met, people are motivated, happy, and productive. Deci, Ryan, and several dozen SDT scholars have produced hundreds of papers that point to the same conclusion: Humans have an innate inner drive to be autonomous, self-determined, and connected to one another (Pink, 2009).

Drawing on four decades of research, Pink (2009) stated that there are three elements of true motivation: autonomy—acting with choice, mastery—the desire to get better and better at something that matters, and purpose—to live a life of purpose. The autonomous quality of human nature is central to SDT and is one of the three basic human needs. Pink noted that the opposite of autonomy is control. Control leads to compliance and autonomy leads to engagement. The Gallup’s extensive research on the subject indicates that 50% of employees are not engaged at work—and nearly 20% are actively disengaged. This costs the United States $300 billion a year in lost productivity (Pink, 2009).

Pink (2009) stated that there are seven deadly flaws to carrot-and-stick motivators. They can extinguish intrinsic motivation; diminish performance; crush creativity; crowd out good behavior; encourage cheating, shortcuts, and unethical behavior; become addictive; and foster short-term thinking. For routine tasks that are not interesting and do not demand creative thinking, extrinsic rewards can provide a small motivational booster without harmful side effects. Rewarding dull tasks will not undermine intrinsic motivation because there is little or no intrinsic motivation involved in doing the task that is being rewarded.
**Brief History of Faculty Development**

Colleges and universities in the United States have a long history of commitment to the development and success of faculty in relationship to their disciplinary expertise and research efforts. Lewis (1996) stated that the sabbatical instituted at Harvard University in 1810 is probably the oldest form of faculty development known.

The primary goal of faculty development well into the 1960s was a focus on research expertise in colleges and universities. The economic and social turbulence of the 1950s and 1960s created a students’ rights movement across higher education where students began to demand more control over what they studied and a role in the determination of the curriculum.

What followed in the 1960s and 1970s was the re-imagination of faculty life that encompassed a broadening of what would constitute the central work of the faculty. This expansion included a more holistic focus on, and rewards for, excellence in teaching and service, which was a dramatic departure from how research had been considered standard previously. This era launched a reappraisal of the value of, and rewards for, faculty members who focused on excellence in teaching (Ouellett, 2010).

Francis (1975) defined faculty development as a primarily classroom-based, individualized endeavor; a “process which seeks to modify the attitudes, skills and behavior of faculty members toward greater competence and effectiveness in meeting student needs, their own needs, and the needs of the institution” (p. 720).

Almost 20 years later, Lewis (1996) noted that the term *faculty development* has evolved, as has the field, to be a more expansive term that encompasses three key areas of effort: *personal development* (self-reflection, vitality, and growth), *instructional development*
(course- and student-based initiatives), and organizational development (program, departmental, and institution-wide efforts).

In *Creating the Future of Faculty Development: Learning From the Past, Understanding the Present*, Sorcinelli, Austin, Eddy, and Beach (2006) categorized the evolution of faculty development into four past ages (scholar, teacher, developer, and learner) and one new one (the Age of the Networker).

Sorcinelli et al. (2006) described the first age (roughly the mid-1950s into the early 1960s) as the Age of the Scholar, indicating that during this time, faculty development efforts intended to improve scholarly competence. Faculty understood that the pathway to success would be based upon their research and publication records.

The second age, the Age of the Teacher, spanning from the ‘60s to the ‘70s, saw a broadening of the definition to include scholarship and an exploration of other venues. Melnick and Sheehan (1976) described three key forms of “teaching improvement programs” that began to emerge as “one-time” programs, expert centers, and financial incentive centers. During this time, a group of faculty members and scholars founded the Professional and Organizational Development Network in Higher Education (POD) in 1974, which was pivotal for what is now called faculty or educational development (Ouellett, 2010).

The 1980s defined the Age of the Developer. During this time, a number of faculty development units emerged on campuses and there was a greater institutionalization of the role of faculty developers (Eble & McKeachie, 1985; Erickson, 1986; Sorcinelli et al., 2006). Initiatives such as the Bush, Ford, and Lilly Foundations are changing the state of undergraduate education by providing the resources and motivation for innovation and experimentation with new approaches to teaching and faculty development.
The 1990s was termed the Age of the Learner and there was a dramatic paradigm shift to focus on teaching and instructional development. Faculty no longer had the role of “sage on the stage,” but now served as the “guide on the side” in the classroom. This caused a surge of interest in student-centered pedagogical methods, such as active and collaborative-based teaching approaches that brought students directly into the teaching and learning equation.

Sorcinelli et al. (2006) proposed that we have now entered a new age, the Age of the Networker. During this age, faculty will be called upon to “preserve, clarify, and enhance the purposes of faculty development, and to network with the faculty and institutional leaders to respond to institutional problems and propose constructive solutions as we meet the challenges of the new century” (p. 28).

**Rogers’s Diffusion of Innovation**

There are five main characteristics to any innovation. One should not assume that all innovations are equivalent units of analysis. While mobile phones and VCRs only took months to adopt, other ideas, such as the metric system and using seat belts in cars, have taken decades to reach complete use. The five characteristics of innovations help to explain individuals’ different rates of adoption. The characteristics are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2010). Rogers (2010) defined these as follows:

Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social prestige, convenience, and satisfaction are also important factors. . . .

Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be as rapidly adopted as an innovation that is compatible. . . .
Complexity is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly. . . .

Trialability is the degree to which an innovation may be experimented with on a limited basis. New innovations that can be tried on an installment plan will generally be adopted more quickly. . . .

Observability is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the innovation, the more likely they are to adopt it. (p. 211)

There are five adopter categories in the diffusion of innovation theory. Adopter categories are a classification system of members of a social system categorized on the basis of innovativeness. The five adopter categories are (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards (Rogers, 2010).

In a study with over 240 faculty members at the University of Hartford, Hagner and Schneebeck (2001) found that faculty demonstrated predominant characteristics of one of the four groups of adopter categories. The first wave was called the entrepreneurs, “sometimes referred to as ‘lone rangers’ (Bates, 2000)” (Hagner & Schneebeck, 2001, p. 3). These professors regard themselves as “the vanguard of innovation and risk taking in teaching and learning” (Hagner & Schneebeck, 2001, p. 3). As a follow-up, Hagner went back and interviewed half of the entrepreneurs and found that “interviews revealed both a high level of commitment to quality teaching and an informed competency with new teaching and learning technologies” (Hagner & Schneebeck, 2001, p. 3).

The second set of faculty was identified by the authors as possibly the most interesting. Although this group shares the same “commitment . . . to quality learning, they are more risk averse (Geoghegan, 1998)” (Hagner & Schneebeck, 2001, p. 3). These risk-aversive faculty may have one or more of the following characteristics:
• Lacking technical expertise, they are unsure of the investment costs associated with transformation.
• They are afraid that their current success in teaching will not translate into the new teaching environments.
• They will need significant levels of instructional support to make the transformation.
• They are hesitant to become engaged in the process of self-examination (in terms of developing learning objectives) that is demanded by the new forms of learning delivery. (Hagner & Schneebeck, 2001, pp. 3-4)

Since the risk-aversive faculty are committed to quality teaching and want to improve their teaching, this group should be given information and shown examples of success stories to motivate them. “The second step [would be] to create a supportive environment that facilitates the transition. . . . [These faculty] focus on teaching and learning, not the technology” being used (Hagner & Schneebeck, 2001, p. 4).

The third set of faculty identified by the authors were called the reward seekers. These faculty adopt “technology-based teaching techniques as a way to advance their professional careers” (Hagner & Schneebeck, 2001, p. 4). If they feel their adoption of the new techniques is “having a positive impact on tenure, promotion, and salary decisions, they will be more” likely to adopt technology (Hagner & Schneebeck, 2001, p. 4).

The fourth group of faculty were called the reluctants. The reluctants are “computer illiterate or firmly believe that traditional [methods of teaching and] learning are superior” (Hagner & Schneebeck, 2001, p. 4). “It is neither time- nor cost-effective” to try to motivate “resistant faculty into institutional transformation, [but] there is a very important human factor to consider when [working] with these individuals” (Hagner & Schneebeck, 2001, p. 5).
Students and Their Technology Expectations

Technology is at the core of students’ daily lives. Students have mobile access to information and resources 24/7 in the palm of their hands. They create multimedia presentations and post them on social networks where people from all walks of life share ideas, collaborate, and learn new things. Outside of school, students can learn at their own pace and in their own way. Their opportunities are limitless, borderless, and instantaneous. Because of the rapidly changing demands of this global economy, it is imperative that faculty members in higher education utilize technology within the classroom and require students to use it to guide their learning. Supporting student learning by using technology in the classroom motivates students because they are using tools that are of particular interest to them, and they are highly relevant for success in their classes and in their future workplace.

As Alan Kay, one of the creators of the Apple Macintosh, noted in his lecture at the University of California, Los Angeles in 1996, technology is anything that was not around when a person was born. For students now and in the future, computers and all their assorted devices are not technologies, they are expectations.

From a Net Gen or millennial student’s perspective, “the definition of technology is not confined to computers or the Internet. Technology is viewed as any electronically based application or piece of equipment that meets a need for access to information or communication” (Roberts, 2005, p. 3.2).

Student technology expectations within the classroom are directly related to faculty knowledge and skill. When 25 Net Gen students from the University of Pittsburgh, Johnstown were asked to rate the following three items in terms of importance, this is what they said were most important: (a) the professor’s experience and expertise, (b) the
professor’s ability to customize the class using the current technology available (for example, Courseweb, Blackboard, WebCT, and so forth), and (c) the professor’s ability to professionally convey lecture points using contemporary software (for example, PowerPoint; Roberts, 2005). The expectation of Net Gen students is that professors will use technology to effectively communicate expert knowledge (Roberts, 2005). Today’s students expect customization and the ability to adapt technology to meet their individual needs.

There are more students than ever enrolled in higher education. Currently, there are over 18 million college students in the United States. The average cost per student per year in the United States is just over $22,000, compared to an average of $7,500 per student for European countries (Organisation for Economic Co-operation and Development [OECD], 2008). Although student enrollment continues to increase, the average cost per student also continues to increase. This puts excessive pressure on government funding, tuition and fees, and additional costs to students and parents (Pink, 2009).

Students who attend college now are not just the top 10% of academic achievers in high schools, which means more students need additional assistance with support and learning. But the most dramatic change in students is the number of older and part-time students (including students who are registered as full time, but are working part time or full time to pay for tuition, living expenses, and added costs) that are attending college. There is also a growing number of international students and increased immigration, which creates differences in language and culture and also influences the context of teaching and learning (Bates & Sangra, 2011).

The average age of the North American postsecondary student is 24, but the spread of ages is wider, and many take longer than the minimum time to graduate, or return to college
to seek advanced degrees. Many students are also married and have children or elderly parents to care for in addition to work and studying. Study time is a relatively small part of their extremely busy lives (Bates & Sangra, 2011). These students are sometimes referred to as adult learners.

Many of the students living on or commuting to campus are considered millennials. Oblinger and Oblinger identified the following characteristics as being typical for millennials:

• digitally literate in the sense of being comfortable and familiar with digital technology
• connected to friends and the world through technology
• immediacy: rapid multitasking, fast response to communications
• experiential: they prefer to learn by doing rather than being told, highly social
• group work: they prefer to work and play in groups or teams, a preference for structure rather than ambiguity
• engagement and interaction: an orientation toward action and inductive reasoning rather than reflection
• a preference for visual (that is, graphics, video) and kinesthetic learning rather than learning through text
• active engagement in issues that matter to millennials (as cited in Bates & Sangra, 2011, p. 13)

There is continuing evidence that millennials do not think faculty do well engaging students in technology within the classroom. For instance, a recent report (CDW Government, Inc. [CDW-G], 2009) found that students rate faculty’s lack of tech knowledge as the biggest obstacle to classroom technology integration and see it as a growing problem. Just 32% of students and 22% of faculty strongly agree that their college/university is preparing students to successfully use technology when they enter the workforce. Educators are not only failing the millennials; they are failing all students if technology is not used to its full potential (Bates & Sangra, 2011).
Millennial students do not expect technology to replace face-to-face contact, but they expect teachers to know how best to use technology for learning. They know that there is not an automatic transfer of technology skills from social to academic use. Teachers need to ensure that students understand how technology can be used for studying. Some students may require more help than others, but all students need to know how to successfully integrate technology within their subject discipline. Effective teaching strategies that can support intelligent use of technology, such as collaborative learning, problem- and project-based teaching, and enabling students to take control of their own learning, are a few of the ways technology could enhance the classroom experience (Bates & Sangra, 2011).

Latest Trends in Technology and Higher Education

Since 2002, EDUCAUSE Learning Initiative (ELI) and the New Media Consortium (NMC) have published an annual report called The Horizon Report. Each report presents critical trends and challenges that will affect teaching and learning over the same time frame, but within the next 5 years. The project includes more than 400 leaders in the fields of business, technology, education, and industry. The report is drawn from a comprehensive body of published resources, current research and practice, and the leaders’ own expertise to identify technologies and practices that are beginning to appear on campuses or are likely to be adopted in the next few years (Johnson, Levine, Smith, & Stone, 2010).

Each edition of the report features six emerging technologies or practices. To ensure that each of the technologies is embedded in a contemporary context that reflects realities of the time, both in academia and the world at large, the advisory board researches, identifies, and ranks trends that are currently affecting teaching, learning, and creative inquiry (Johnson
et al., 2010). The following trends have been identified as key drivers of technology adoptions from 2010 to 2015.

The report’s first time period of technology adoption, within the next 12 months, points to mobile computing and open content (Johnson et al., 2010). Mobile computing is considered any device, from a smart phone to a netbook, that is a portable tool for productivity, learning, and communication, with a wide range of applications made specifically for mobility. Open content has its roots in the Massachusetts Institute of Technology’s (MIT’s) Open Courseware Initiative (OCW), the Open Knowledge Foundation, and work by the William and Flora Hewlett Foundation and others. Open content takes advantage of the Internet as a global dissemination platform for collective knowledge and wisdom, and designs learning experiences that maximize the use of it.

The second adoption, set for 2 to 3 years out, is electronic books and simple augmented reality (Johnson et al., 2010). Both of these technologies are entering the mainstream of popular culture and are already being used on a surprising number of campuses. Electronic books are convenient electronic reading devices that combine the activities of acquiring, storing, reading, and annotating digital books, not to mention the paper savings. Students can collect hundreds of books in a space smaller than a single paperback book to carry in their backpack or purse. Augmented reality refers to digital information that can overlay onto the physical world quickly and easily.

On the horizon, 4 to 5 years away, is the use of gesture-based computing and visual data analysis (Johnson et al., 2010). Gesture-based computing is when a device is controlled by the natural movements of the finger, hand, arm, and body. The Xbox Kinect system is a video game system that is gesture based. Visual data analysis is an emerging field that
blends statistics, data mining, and visualization, which makes it possible to sift through, display, and understand complex concepts and relationships.

The report lists detailed descriptions, links to active demonstration projects, and a wide array of additional resources related to the six technologies mentioned above. Examples include the University of Utah’s iPhone application and the Body Electric that allows scientists, students, doctors, and patients to study human anatomy, visualize large data sets in 3D, manipulate and analyze large numbers of high-resolution images, and evaluate medical problems (Johnson et al., 2010). Other examples are websites such as the Creative Commons, which has created a whole set of legal tools that are consistent with the rules of copyright that make it not only possible but easy for people to build and share work with others. The organization provides free licenses that allow anyone to create, share, and use open content.

With motivated faculty and a well-organized campus technology plan, institutions could position themselves to transform their faculty from “death by lecture” professors to inspirational leaders who use cutting-edge technology to guide their students’ learning and research, so students (and faculty) have the tools they need to be successful professionally and academically. This could foster teaching and learning with technology skills that everyone will benefit from—now and in the future.

Summary

In this literature review, the objective is to illustrate the history of the professoriate and to show how faculty positions have become more complex and less stable in the last decade. It also includes a brief description of the history of faculty development in higher education, because it is important to know what has worked and what has not worked in the
past regarding technology training and development, and how development of faculty can be reconfigured for the 21st century.

Since the research topic is about discovering how faculty members make meaning of their use of technology in pedagogy, the researcher also included a section about what scholars who have studied motivation have found regarding intrinsic and extrinsic motivation. The conclusion of this review discussed a few of the latest trends in technology and higher education to illustrate some of the exciting possibilities that await faculty, their students, and their respective institutions if strategic campus technology plans are successfully implemented, supported, and rewarded.
CHAPTER 3

METHODOLOGY

Rationale for the Study

The influence of increased technology use by faculty in the classroom, both to aid in teaching classroom content and to improve pedagogy, is a field where more information is needed. The challenges facing today’s faculty place new expectations and require new skills and abilities. In addition to their usual teaching and administrative functions, faculty are expected to increase their use of technology in the classroom, help generate resources for the university, and create an environment that values diversity. Faculty will need easy, continuous access to professional development activities that help them acquire those skills.

Qualitative Research

This study employed a qualitative research methodology. The epistemological view was constructivism, which holds that meaning is not waiting to be discovered but is constructed. Meanings are constructed through an interaction of human beings and their world (Crotty, 2003). Merriam (2002) noted that reality is constructed through the interaction of people and their social worlds. The epistemology fit this study as new meaning of influences of technology on faculty was constructed. The theoretical perspective was basic interpretivism, which is interested in how people make sense of their experiences, construct their worlds, and the meaning they attribute to their experiences (Merriam, 2002). The methods employed were interviews, document analysis, content analysis, and theme identification.
There are four elements included in the research process: the method, the methodology, the theoretical perspective, and epistemology. The method refers to the techniques or procedures used to gather and analyze data related to a research question. Methodology is the strategy, plan of action, or process linking the choice and use of methods to the desired outcomes. The theoretical perspective is the philosophical stance that informs the methodology, provides a context, and grounds the logic. Epistemology refers to the theory of knowledge embedded in the theoretical perspective, and the methodology. An epistemology is a way of understanding and explaining how we know what we know (Crotty, 2003).

For every research endeavor, the researcher must choose a research method. There are three types of research methods: quantitative, which is the oldest and most common method; qualitative, which has achieved status and visibility in the last 25 years; and mixed methods, which uses a mix of both quantitative and qualitative methods. A mixed-methods study uses both methods in tandem to make the study stronger than either method used alone.

Quantitative approaches involve the processes of collecting, analyzing, interpreting, and writing results of a study. Specific processes occur for both survey and experimental research in that the researcher identifies a sample and a population, specifies the strategy of inquiry, collects and analyzes the data, presents the results, makes an interpretation, and then writes and presents the research, which is consistent with either a survey or experimental study (Creswell, 2009).

Quantitative research also involves enumerating things—using numbers to describe relatively large groups of people. This type of research is not useful in revealing meanings
that people make of particular events or activities, nor does it help us understand complicated social processes in context (Esterberg, 2002).

Qualitative methods involve data collection, analysis, interpretation, and report writing that differs from that of quantitative. Qualitative studies involve purposeful sampling, collection of open-ended data, analysis of text and/or pictures, information in figures and tables, and personal interpretation of the research findings. This type of methodology also includes a checklist to ensure that all of the important procedures are covered (Creswell, 2009).

Qualitative methods involve learning how individuals experience and interact with their social world, and the meaning it has for them. The main premise behind qualitative research lies in the notion that meaning is socially constructed by individuals while interacting in their world. Reality is not the fixed, single, measurable phenomenon that it is assumed to be in quantitative methods (Merriam, 2002).

Since qualitative research involves words, many people believe that it is easier than quantitative methods because one does not have to memorize mathematical formulas or puzzle over statistics. But this is not necessarily true. Qualitative research involves complex issues of interpretation and data gathering. Additionally, qualitative methods may take the researcher longer because he or she has to develop analytical skills and learn to think sociologically. The researcher also has to develop a discrete set of methodological skills, such as observing participants, interviewing, and learning to write and move back and forth between theory and evidence (Esterberg, 2002).

People make sense of their lives and their experiences. “According to constructivism, we do not create meaning. We construct meaning” (Crotty, 2003, p. 43). Constructivism
describes the individual human engaging with objects and making meaning from them. The goal of research is to rely on the participants’ views of the situation as much as possible. Constructivist researchers often address the processes of interaction among humans. This research used a basic interpretivist approach, and the researcher was the instrument that was interested in how participants make meaning of a phenomenon.

Justification

There are lots of reasons that people conduct qualitative research. Some researchers enjoy the process of gathering data and interpreting them. It is a way of finding out about things of interest and a process of exploration. Many people conduct research as a requirement of their job. For example, social workers do social research to find out if a particular program or policy is effective. Even if researchers are not required to do research, they need to know how to evaluate research, rather than accept it at face value (Esterberg, 2002).

Many qualitative researchers are motivated by a sense of social justice. There are different categories of critical research methodologies that support social justice issues, such as critical race theory (CRT), LatCrit theory, feminism, transgressive, and queer theory.

Creswell (2009) identified the following characteristics unique to qualitative research:

- Qualitative research takes place in the natural setting.
- Qualitative research uses multiple methods that are interactive and humanistic.
- Qualitative research is emergent rather than tightly prefigured.
- Qualitative research is fundamentally interpretive. (pp. 181-182)

Qualitative research supplies “a wealth of detailed information about a much smaller number of people and cases. This increases the depth of understanding of the cases and situations studied but reduces generalizability” (Patton, 2002, p. 14).
Several key characteristics of qualitative research fit this study. First was the goal to understand the way faculty constructed meaning from their past, present, and future regarding technology use. Second, as the researcher, I was the primary instrument for data collection. Third, this study had many similarities to the inductive process, which uncovers themes, categories, and concepts. Finally, this information lends itself to the richly descriptive nature of qualitative research (Merriam, 2002).

**Constructivist Epistemology**

Epistemology is the theory of knowledge that is embedded in the theoretical perspective, which in turn is the methodology. Epistemology is concerned with understanding and explaining how people know what they know by encompassing the nature of knowledge, its possibilities, and its scope. Epistemology is the philosophical grounding for deciding what kinds of knowledge are possible and how one can be assured they are legitimate (Crotty, 2003). Ontology informed the theoretical perspective. The epistemology fit this study as new meaning of faculty using technology in pedagogy was constructed.

**Interpretive Theoretical Perspective**

The theoretical perspective is the philosophical stance that informs the methodology and provides a context for the process of grounding its logic and criteria. It brings out the assumptions brought to the research and is a way of looking at the world to make sense of it. The theoretical perspective is concerned with how people know what they know (Crotty, 2003). This study employed a basic interpretive methodology, which is concerned with how people interpret their experiences, construct their worlds, and the meaning they attribute to their experiences (Merriam, 2002).

**Research Design**
The research design for this study is delineated in this section. The research elements are research site, access to participants, participant selection, primary data collection methods, secondary data collection methods, data analysis and interpretation, goodness and trustworthiness, and the researcher’s role and reflexivity.

**Research Site**

The research site was Midwestern University (a pseudonym for the university to protect the confidentiality of the research; Esterberg, 2002). Midwestern University is a small private university in an urban location. Midwestern University has a full-time student enrollment of approximately 1,800 students and awards both baccalaureate and master’s degrees. The campus is situated in the inner city and spans roughly six blocks from end to end. The research was conducted over a 4-month period during the 2011-12 academic year. As a faculty member at Midwestern University, I had ready access to colleagues and interview space on campus.

**Access to Participants**

Access to full-time and part-time faculty participants was gained through campus e-mail correspondence. Participating in the research was voluntary, and participants were assured that their status within Midwestern University would not be affected in any way by their choice to participate or not.

**Recruitment and Selection**

All full-time and adjunct Midwestern University faculty were e-mailed an invitation to participate in this research study. Ninety-two full-time faculty and over 200 adjunct faculty were originally e-mailed. Of the 92 full-time faculty members, 8 volunteered to participate, and the first 6 were chosen to be included in this research study. Surprisingly, a
gender mix of three female and three male participants was achieved by the end of the day that the faculty were e-mailed.

The participants, who served as the main data source in this study, were six full-time faculty members of Midwestern University. All six participants were in different departments on campus. Permission to use human subjects for this research was approved by Midwestern University’s and Iowa State University’s Institutional Review Boards. Participants were asked for their résumés, syllabi, and background history for additional information. The researcher also looked at their personal websites and Blackboard course sites, if available.

After selecting the first six faculty who volunteered, the participants were notified by e-mail to schedule the first interview date and time. Interviews were conducted in faculty offices and scheduled at the participants’ convenience. Interviews were confidential, and the office door always remained closed during the interviews, with no interruptions. Each interview was recorded on a Sony® digital recorder, and notes were also taken. The second and third interviews with participants were scheduled for the same day, time, and location but during the week following the previous interview. Only one interview was rescheduled at the request of the participant because of a time conflict. The three interviews with each participant were completed as planned, one per week for 3 weeks.

**Primary Data Collection Methods**

Researchers interview participants because they are interested in their stories. Stories are a way of knowing. When people tell stories, it is essentially a meaning-making process and allows them to select details of their experiences from their stream of consciousness. Aristotle stated that every whole story has a beginning, middle, and an end (Butcher, 1902).
It is this process of selecting details, reflecting on them, giving them order, and making sense of them that helps participants make meaning of their experiences (Schutz, 1967).

**Framework for interview protocol.** Data were collected by means of phenomenological in-depth interviewing. This method combines life-history interviewing (Bertaux, 1981) and focused, in-depth interviewing formed by assumptions drawn from the phenomenon. For this process, the researcher chose Irving Seidman’s (2006) three-interview series method. The data collection method that was employed was three semistructured interviews with open-ended questions. Esterberg (2002) explained,

Semi-structured interviews (sometimes called in-depth interviews) are much less rigid than structured where the researcher risks missing what’s most important. In semi-structured interviews, the goal is to explore a topic more openly and to allow interviewees to express their opinions and ideas in their own words. (p. 87)

**Three-interview model.** For the first interview, participants were asked to tell the researcher about their past life, up until the time they became professors. They were instructed to go as far back as possible but stay within the 90-minute interview time.

According to Seidman’s (2006) three-interview model, it is at the first interview that the researcher asks the participant to reconstruct the details of his or her experience in light of the topic up to the present time. The interviewer’s main task is to help the participant put his or her experience into context by asking the participant as much as possible about him or herself. The interviewer asks the participant how his or her situation came to be, not why. By asking how, the researcher hopes to have the participant reconstruct and narrate a range of events from his or her past family, school, and work experiences (Seidman, 2006).

At the second interview, the participant is asked to focus on the concrete details of his or her present lived experience in the topic area (Seidman, 2006). The goal of this interview
is to have the participant reconstruct the myriad details of his or her experience in the area of study.

The final interview, according to Seidman (2006), reflects on the meaning of the participant’s experience. The question of meaning is not of satisfaction or reward but of the intellectual and emotional connections between the participant’s work and life. For the participant to make meaning, he or she must look at how the factors in his or her life interacted to bring him or her to the current situation (Seidman, 2006).

**Interview questions.** The following questions were asked during each interview for this study:

- **First interview**
  1. What is your age range?
     a. Less than 30 years
     b. 30-39 years
     c. 40-49 years
     d. 50-59 years
     e. 60+ years
  2. What is your highest degree held?
  3. How long have you been teaching?
  4. How long have you been at Midwestern University?
  5. Do you have tenure? If not, are you tenure track or continuing contract?
  6. What is your current rank?
  7. Tell me about your past life, up until the time you became a faculty member. *How did you come to be a college professor?* Going back as far as possible (within 90 minutes), construct events in your past family, school, and work experiences that have led to your current career. Include both teaching- and technology-related experiences you have been involved in.
  8. Do you use Blackboard for your courses? What are the course numbers? May I have permission to look at them?
  9. Do you use any books that have online instructional materials or supplements?

- **Second interview**
  1. Tell me how you teach a typical class? What types of activities do you have your students participate in?
  2. How do you use technology in the classroom for teaching and learning?
3. What do you feel are the benefits of using technology in teaching and learning?
4. What do you feel are the drawbacks of using technology in teaching and learning?
5. What types of technology do you use for classroom management? Grades?
6. Do you e-mail your students? Text them?
7. Are there any classes that you teach that you use technology more often in, and why?
8. Are there any associations, clubs, or accrediting boards that you request your students participate in?
9. Tell me about the committees you’ve served on over the years and/or special appointments during your time at Midwestern University?
10. What types of faculty development activities related to technology have you been involved in on campus? Off campus?
11. Was the development/training beneficial? If so, why? If not, why?
12. How could you be motivated to use technology more in pedagogy?
13. How do you think Midwestern University could provide more technology support or faculty development related to technology?
14. Do you have a Facebook page? If so, may I be your friend?
15. Do you tweet?
16. Do you use Blackboard? If so, may I request access from [the site administrator] to view your course sites?
17. Do you use other online tools, such as software or websites, or a required book that has an online component? If so, could you tell me what they are?

• Third interview

1. Think about your present situation in detail and within the context in which it occurs. Given what you have said about your life before you became a faculty member, and given what you have said about your teaching now, how do you understand technology and teaching in your life? What sense does it make to you?
2. How did the factors in your life interact to bring you to your present situation?
3. Given what you have reconstructed in these interviews, where do you see yourself going in the future?

Secondary Data Collection Methods

Blackboard/Facebook. One secondary method of data collection was the use of Blackboard. The researcher was granted access to participants’ course sites. E-mail was used with participants throughout the process of interviewing and collecting data. Another method to study technology use was by becoming friends with all the participants on Facebook.
The data in Figure 5 were provided to the researcher by the Human Resources Department at Midwestern University. Seventy-two, or 78%, of the 92 full-time faculty members are 40 years old or older. That means 78% of Midwestern University’s faculty were born before the advent of the computer and the Internet. Another interesting finding is that of the 92 full-time faculty members, 52 have terminal degrees and only 43 are tenured. That means that less than half are tenured at Midwestern University, although it is likely more faculty are still in the tenure track. Also, there may be additional faculty working on their PhDs, waiting to advance to tenure track. To be in a tenure-track position at Midwestern University, one must attain a PhD or a master’s degree (if that is considered a terminal degree) in one’s field of study. It would be interesting to know the age ranges of the 43 tenured faculty members.

<table>
<thead>
<tr>
<th>92 Total Full-Time Faculty at Midwestern University</th>
</tr>
</thead>
<tbody>
<tr>
<td>86 Faculty</td>
</tr>
<tr>
<td>1 Lecturer</td>
</tr>
<tr>
<td>3 Instructors</td>
</tr>
<tr>
<td>2 Visiting Professors</td>
</tr>
<tr>
<td>Faculty Age Range</td>
</tr>
<tr>
<td>Less than 30 Yrs</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>30-39 Yrs</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>40-49 Yrs</td>
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<td>25</td>
</tr>
<tr>
<td>50-59 Yrs</td>
</tr>
<tr>
<td>29</td>
</tr>
<tr>
<td>60+ Yrs</td>
</tr>
<tr>
<td>18</td>
</tr>
</tbody>
</table>

| 42 Faculty have Ph.Ds                     |
| 52 Faculty have Terminal Degrees          |
| 43 are Tenured                           |

*Figure 5.* Breakdown of full-time faculty at Midwestern University.

**Documents.** Each participant provided the researcher with a copy of his or her current vitae. Reviewing their professional careers, education, and professional interests revealed patterns and themes in faculty development initiatives. It also allowed the researcher another means to look for similarities and differences among disciplines. Because of confidentiality concerns, no additional documents were used in this research.
**Member checks.** Participant profiles, themes, and the findings were e-mailed to participants. Participants were asked to read the information, make corrections, and send it back in whatever format was easiest.

**Data Analysis and Interpretation**

In qualitative research, the researcher works to create meaning out of raw materials, such as field notes, interview transcripts, photos, and documents, both paper and online. Data analysis is a process of making meaning. It is a creative process, not a mechanical one (Denzin, 1989). One of the difficulties of analyzing qualitative data is that there is no one right way to make sense of what is found (Esterberg, 2002).

The interviews were audiotaped and transcribed with the permission of the participants. After the interviews were transcribed using ExpressScribe software, the researcher mailed the printed documents of each of the individual interviews to the participants to have them read them, sign them, and send them back. All 18 interviews were then printed out and cut into questions or excerpts. Data were coded first into categories that fit the TPACK framework (see Figure 6). Once all the data were put into piles and categorized by code, each question was summarized. The researcher then took each summarized question and further sorted the piles into themes to make sense of what the participants said. It was exciting to see the themes emerge and participants’ stories make sense.

**Goodness and Trustworthiness**

There are many terms in qualitative literature that speak to validity, such as trustworthiness, authenticity, and credibility (Creswell & Miller, 2000), and it is a much-discussed topic (Lincoln & Guba, 2000).
There are certain validity strategies available that help check the accuracy of findings as well as convince the reader of accuracy. The eight primary strategies are triangulation, member checking, rich thick descriptions, clarifying any biases, presenting discrepant or negative information, prolonged time in the field, peer debriefing, and use of an external auditor (Creswell, 2009).

Of the eight primary strategies, I employed triangulation (résumés, Blackboard, and Facebook), member checking, rich thick descriptions, reflexivity, and peer debriefing. Triangulation occurs when the researcher discovers themes based on converging several sources of data or perspectives from the participants (Denzin, 1989; Esterberg, 2002). By using multiple kinds of data, this allows the researcher to balance the strengths and weaknesses of each and adds validity to the study (Esterberg, 2002).

Member checking determines the accuracy of the participants’ comments by taking the themes or specific descriptions back to the participants to see if that was what they really

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**Figure 6.** Categories for coding interview data. Adapted from “Tracing the Development of Teacher Knowledge in a Design Seminar: Integrating Content, Pedagogy and Technology,” by M. J. Koehler, P. Mishra, and K. Yahya, 2007, *Science Direct: Computer & Education, 49.*

<table>
<thead>
<tr>
<th>Categories for coding data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(T) Technology</td>
</tr>
<tr>
<td>(P) Pedagogy</td>
</tr>
<tr>
<td>(C) Content</td>
</tr>
<tr>
<td>(PT) Pedagogy and Technology</td>
</tr>
<tr>
<td>(CT) Content and Technology</td>
</tr>
<tr>
<td>(CP) Content and Pedagogy</td>
</tr>
<tr>
<td>(CPT) Content, Pedagogy and Technology</td>
</tr>
<tr>
<td>(M) Miscellaneous</td>
</tr>
<tr>
<td>(S) Support/IT Related</td>
</tr>
</tbody>
</table>

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meant. This process involves individual follow-up interviews or phone calls to go over the polished themes or findings with the participants to allow them to make comments about the research findings.

When a researcher provides rich, thick, detailed descriptions, it makes the results become more realistic and richer. This type of descriptive writing puts the reader in the setting and can create an element of shared experience. This procedure also adds to the validity of the study.

The researcher’s job is also to clarify any bias. This can be achieved by including a researcher positionality or reflexivity statement in the research. Positionality contains comments about how the researcher’s findings are shaped by his or her background, culture, history, and socioeconomic origin. Additionally, any negative or discrepant information that contradicts the general perspective of the theme will add to the credibility of the research findings (Creswell, 2009).

Another way of enhancing accuracy is by conducting peer debriefing. This involves finding a person (peer debriefer) who will review and ask questions about the research report. This ensures that the researcher is double-checking to see if the peer debriefer comes to the same conclusions that the researcher did (Creswell, 2009).

Lastly, an external auditor who is not familiar with the research is another way to provide an objective assessment, either throughout the process or at the end of the study (Creswell, 2009).

**Researcher Positionality**

I am a white, middle-aged female who has taught in the Art and Design Department at a small, private, religious university in the Midwest for the past 11 years. I teach computer
graphics and web design to undergraduate students mainly in Graphic Design, Graphic Journalism, and Visual Art, but I also acquire students from other majors, including Education, Mass Communication, English, and many other departments. I am also the faculty advisor within the department for the Art Club.

My education includes a Bachelor of Arts in Commercial Art and Fine Art from Midwestern University. My Master of Arts in Teaching is from a similar institution to Midwestern University, another small, private, Midwestern university. Unlike my prior degrees, I am earning my doctorate at a large, land-grant institution in the Midwest. While all three institutions held the same mission—educating students—each were very unique and different. Having that student perspective and my 11 years of teaching experience has given me a strong knowledge base about all types of higher education institutions.

While none of my degrees were acquired from online institutions, I have taken several courses at the land-grant institution that were either hybrid (partially face to face and partially online) or completely online. I prefer the face-to-face classes because of the interaction with the diverse students and the practical knowledge and experience that they bring to class. I have gained many contacts and friendships with classmates from all types of institutions within higher education because of being in the Educational Leadership and Policy Studies program.

My background in technology includes being the faculty liaison who works with the Instructional Technology and Instructional Resources Department, the Art and Design Department, and the Communication Department to investigate and adopt technology within and among the departments. I also oversee the computer labs, the work-study students, the department credit card, and the printers in the department.
I am the only faculty member in the Art and Design Department and one of less than a handful on the Midwestern University campus that teaches web design. I also teach seven different (mainly Adobe) software programs. I have worked with nearly one third of the faculty at Midwestern University training them to create their own faculty websites, and I continue to do that on a volunteer basis. I, along with my previous department chair, wrote a Web Design minor, and since I was the secretary of the Curriculum and Educational Policy Committee at that time, I presented it to the committee for approval into the 2010-12 catalogue at Midwestern University. This is an achievement of which I am proud.

I have served on three committees for a term of 2 years each. I was also secretary for 1 year on all three of those committees. The committees were Instructional Resources and Instructional Technology, Assessment and Program Evaluation, and Curriculum and Educational Policy Committees. All three are major committees within the campus infrastructure and require time and dedication that take away from the general business of a faculty member, which is teaching. However, all three committees directly impact student learning, student/faculty technology needs, and the curriculum and assessment measures of students, and they deserve faculty time, input, and attention.

It was because of my work on these three committees that I realized a need for technology training for faculty, students, and staff was long overdue. I could see ways technology could have a positive impact throughout the campus that could and should be occurring but were not because no formal measures were in place for support of such an endeavor. That is how I decided my overarching research question.

I am an avid technology user. I have been using a Macintosh since 1994. To conduct this research, I used a 17” MacBook Pro laptop that my institution has provided for my
school and personal use. Software I used included Microsoft Word, EndNote, PowerPoint, ExpressScribe, and Kindle/Kindle for Web. I also used a digital recorder to conduct and record participant interviews. I downloaded theses, journal articles, and books from the Internet to inform my Literature Review and Methodology chapters. I was able to highlight information and quotes easily, whether on my Kindle or my Macintosh. The program automatically syncs between both computer and device on its own. It makes note-taking a breeze.

While I embrace technology and thrive on learning new computer/Internet-related techniques, I am fairly unique to my institution. Faculty development opportunities are limited to Blackboard Course Management Software training and a yearly $500 stipend that is given out each fall to all full-time faculty for individual training of their choice. Developmental monies may accrue up to, but no more than, $2,500, and then additional monies are taken back if not used. I feel this has proven to be an ineffective and unorganized way of getting faculty the development and resources they need to incorporate technology into teaching and learning in their pedagogy.

I have been an assistant professor in my department the entire 11 years I have worked at Midwestern University. Until I receive my doctorate, I cannot be considered tenure track. Tenure track, as mentioned in the Literature Review chapter, is where a professor achieves the rank of full professor first, and then is granted and guaranteed a position with the institution for the duration of his or her career, for as long as he or she wishes. All of my colleagues within the department have become full professors with the exception of one, who will most likely become a full professor this coming 2011-12 school year. This degree will definitely be a major accomplishment and a milestone for me. I will have the highest degree
attained in the Art and Design Department at Midwestern University and will finally become tenure track.

What is more gratifying than anything about my faculty position is that I work at the institution that I was trained at and admire. I have always been loyal to my alma mater and my art professors, and I was blessed to work with two of the three professors who had schooled me. It was a dream of mine to become a professor someday, and then to be hired by the institution I received my bachelor’s degree from was both an honor and a privilege, and one that I have tried to live up to.

I have taught and learned with many wonderful students in the department over the last decade, and that has been my greatest joy. I have also grown working with my colleagues and have made many friends outside of the department that include both staff and faculty. At Midwestern University, one either “fits” or does not. I have always felt like I fit, both as a student and now as a faculty member. That institutional “fit” I speak of is essential for students, staff, and faculty at any institution if the campus hopes to continue to grow and thrive.

**Limitations**

A limitation to this study is that it focused on just one Midwestern university. A potential limitation is that participants are not offered faculty development training other than training on how to use course management software such as Blackboard and Datatel student support software. Also, there is no financial incentive, credit toward promotions and tenure, or class release time, so faculty may not be motivated to try new technology. This means that faculty responses may have been influenced by institutional reality rather than considering the factors in an ideal situation.
Summary

This was a qualitative research study. The epistemology was constructivism, which holds that meaning is not discovered, it is constructed. The epistemology fit this study as new meaning of the influences of technology on pedagogy was constructed for faculty members. The theoretical perspective was basic interpretive, which seeks to uncover how people understand their experiences, construct their worlds, and the meaning they attribute to their experiences (Merriam, 2002). The method included interviews, content analysis, and limited document analysis.
CHAPTER 4

FINDINGS

The purpose of this qualitative study was to make meaning of the experiences of six faculty members at Midwestern University and how they make sense of the combined use of technology, pedagogy, and content within the classroom. One way this study expanded the available knowledge base and filled the gap in the literature was to provide a voice for the six faculty members. Through interviews and document analysis, meaning was connected for the six faculty members. The focus during data analysis was the phenomenon of the use of technology in pedagogy practices of the faculty members. Focusing on the phenomenon supported the process of making meaning of the combined experiences of the six faculty members interviewed.

Listening to the faculty members make meaning of how the benefits and barriers of using technology in the classroom drive their decision making about technology integration provided needed insight into how to improve practice and policy. Through the description of the participants' past, present, and future, faculty members made meaning of their work regarding the three knowledge bases: content, pedagogy, and technology. This chapter addresses the findings of the study and is divided by themes. Each theme is supported with quotes from the participants’ interviews, data collected from their Blackboard course sites, and résumés and syllabi that they provided as part of the study. The chapter addresses the research questions as they relate to the themes and concludes with the theories that guided this study and how the theories relate to the findings.

This study addressed the following research questions:
1. How do faculty members make meaning out of the complex relationship of the three knowledge bases: content, technology, and pedagogy?

2. How do faculty members make meaning of how students use technology for educational and daily use?

From the interviews completed for this study, similarities emerged in rewards and barriers that caused participants either to use or not use technology within the classroom. Four overarching themes emerged that are supported by statements and documents from the six study participants: Amy, Diana, Helen, John, Mark, and Quincy. Themes emerged that helped to make meaning of their teaching and their technology decisions. The following are four themes that evolved from this qualitative, phenomenological study:

1. Technology and pedagogy are inseparable
2. Pedagogy and technology
3. Benefits and barriers of using technology
4. Support

**Participant Profiles**

The six participants who volunteered for this study were bound by the criterion of being full-time professors at Midwestern University. The faculty members represented were all from different departments: communication, health and physical education, history, nursing, psychology, and world languages. The gender mix was balanced with three men and three women, all with expertise in different disciplines. The six professors combined have taught 133 years. The least number of years taught was 13 and the greatest number was 29. All participants were tenured full professors, with the exception of one who was a continuing contract assistant professor (see Table 1).
Table 1

Participant Data

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age range</th>
<th>Highest degree</th>
<th>Rank</th>
<th>Yrs. teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy</td>
<td>50-59</td>
<td>PhD</td>
<td>Professor</td>
<td>27</td>
</tr>
<tr>
<td>Diana</td>
<td>50-59</td>
<td>Master’s</td>
<td>Assistant professor</td>
<td>25</td>
</tr>
<tr>
<td>Helen</td>
<td>50-59</td>
<td>EdD</td>
<td>Professor</td>
<td>21</td>
</tr>
<tr>
<td>John</td>
<td>40-49</td>
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<td>Quincy</td>
<td>30-39</td>
<td>PhD</td>
<td>Professor</td>
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Mark

Mark’s parents both worked for the educational community. His father was the business manager for a public school system in Minnesota, so he was in charge of negotiating teacher contracts and buying school equipment. Mark’s mother was a part-time music teacher.

Mark considers both of his parents to have had more technological involvement in their careers than the average person. Mark’s mother used recorders and microphones to record singing and music. Mark’s father purchased school equipment for the school system, so he was always knowledgeable about new technologies that were available to educators and consumers.

When Mark was in the sixth grade, he received a reel-to-reel recorder from his parents for Christmas. It was an experience that shaped his career path and a memory that he will never forget.

So, about 6th grade, I guess I would have been about 12 years old, a very pivotal thing happened in my life. My dad and mom gave me a recorder, an audio recorder, for Christmas. And the original audio recorder was a little reel-to-reel deck. They had little tiny reels on them, and you could record your voice. And I absolutely fell in
love with that. So, it had a little microphone and you would record things on it and play it back, and I thought that was the coolest thing in the world. And my dad got it through his school catalog. He had a school equipment catalog that he could get. So he bought that and I just loved it.

Mark grew up in a small town. There was no local TV station and only one local radio station. He recalled another family experience that may have impacted his early fascination with and love of technology:

My mom was interviewed once on the radio, and I—I just was riveted to the radio. I can remember her standing on the phone, being interviewed on the phone, and I was listening to the radio. And I just thought that was the coolest thing in the world. So all that kind of tied together in high school when I went into a speech class, and the teacher of the speech class also worked on the radio station on Sunday night. And he asked—we had to do some, like, fake radio shows. And he invited us to come up to watch him one week, and I just fell in love with it.

John

John’s family ties to education are similar to Mark’s. John’s mother was also a teacher and his dad was a pastor, which John said is kind of a teacher. His mother taught preschool through junior high, but mostly elementary school.

When John was a child, his family moved several times, and then his father joined the military as a chaplain. After that, John’s family moved often. They traveled frequently, so much so that he visited 13 different European countries during his high school years. His parents always approached their travels as experiential learning opportunities as opposed to vacationing.

John’s time living in Germany from eighth grade until his graduation had a tremendous impact on him. He said that his time growing up in Europe will always influence how he views people of different ethnicities, other cultures, and the world.
Quincy

Quincy came from a family of teachers. His grandfather was a rural school superintendent and teacher in the Black Hills of South Dakota. Quincy’s father received his degree in education and then joined the military. Quincy attended eight different schools from kindergarten to graduation. He was fortunate, though, because he had good teachers. He enjoyed school and loved to read, even though he admitted he was not always the best student.

Quincy noted that he had to make friends quickly in school because that was what everyone was used to. The teachers on the base were trained well, and that always made him feel more at home. This helped him transition from school to school, as his family could move in the middle of the school year or at any time, and then he would have to start making friends all over again. Moving around from school to school taught Quincy how to adapt and make friends quickly. It also improved his confidence and communication skills, two qualities that are essential to teaching and learning.

Helen

Helen was born and raised in a university town. Like the participants mentioned before her, she also had a mother who was a teacher. Her mother taught physical education and her father was a dentist. Her parents met at the university in the town where she lived, and they greatly valued education.

They built a house that was real close to campus. Then, in that area, there were faculty, other faculty from Northern University, and there was a physician across the street. And it wasn’t necessarily that wealthy of an area, but it’s just that people liked being around the university. So, I grew up with family, friends, neighborhood friends who were college professors. And it was really close to the university, and we did a lot. We went to games and we went to concerts. So I think that it really instilled in me that my family really valued education. My dad always said to me, “No one can
ever take your education away from you.” So they really valued that. And so that was part of my upbringing.

Helen’s parents enrolled her in a lab school that fed into the Northern University postsecondary education system. She attended the lab school from pre-kindergarten until she graduated and then went on to Northern University.

I went to the same school all the way through, and it was a laboratory school for Northern University. So, we’d have student teachers and we would have people come and observe us all the time. So, I was part of that learning I think early, early on.

Helen’s immersion in an educational environment both in and out of school growing up may have caused her to gravitate toward a teaching career. Helen grew up naturally expecting to go to college because of her parents’ values and the decisions they made early on and throughout her life.

**Diana**

When Diana was only 6 weeks old, her parents, who were missionaries, moved the family to Brazil. They lived in the capital city of the Amazon region. Diana attended a Brazilian all-girls school during the morning, and her mother taught her the American system in the afternoon. Because Diana did not have a TV or a radio growing up, she learned to study and read a lot, which she said paid off later in life.

Diana’s father was a pastor and a missionary. Her mother was a master teacher; she taught people on all levels. She was not only Diana’s mother but her mentor and teacher as well.

She was able to teach under coconut trees using all kinds of devices, which enabled me to be very creative and outside the box. And of course I went with her—did some really neat things, from working with leper colonies to schools where there was no running water. Um, but as for me personally, I went to an all-girls school that was
very high class and very good. She [mother]—in Brazil, she taught people how to read in Portuguese, but she also taught some English.

Diana’s first job, at the age of 12, was to teach Brazilian doctors how to speak English. Her mother was too busy to help them, so she let Diana teach them at their house after dinner.

My first job was to teach doctors English at the age of 12. They wanted to learn to speak English. They’d had all kinds of grammar in school, and my mom did not have time, so she said, “If you would be willing to let my daughter work with you, go for it!” It was wonderful. They would come to the house at 8 o’clock at night, because the dinner hour is much later in Brazil. And I had a blast. I don’t remember what I made, but I know that I thought I’d died and gone to salary heaven, because I made a lot more than my friends, because I was teaching a group of five doctors.

Diana is another participant who was immersed in a constant learning environment, both at home and in school, from a very young age. She was both a student and a teacher because of her parents’ values and life decisions. She was also forced to think creatively because of the limited resources she and her family had.

Amy’s parents were well educated, and education was very important in her upbringing. She lived in a small town with a population of around 500. Amy attended a small school growing up.

Amy’s mother was one of the first females to receive a college degree in chemistry in 1944. Her father received a degree in veterinary medicine, and both grandmothers were teachers. Additionally, her grandfather had a PhD and was the school superintendent. College was a natural progression in her family and was not only modeled but expected of her.

So, always, yes, there was a strong education component. I always grew up knowing I’d go to college. And you know, I’d ask my mother, “What am I gonna do when I
grow up?” and she’d say, “Oh, you’re gonna go to college.” I mean, I never thought I’d do anything differently. It never crossed my mind that I wouldn’t go to college. My parents were very supportive of me going to college. They paid for my college education and were always very interested.

Summary

Having educational opportunities and valuing education was the most prevalent theme among the participants. All six had family members, especially parents, who were educators or had ties to the education system. Diana, Helen, John, Mark, and Quincy had mothers who were teachers. Diana, John, and Quincy were immersed in other cultures growing up because of travel due to parents serving in the military or being missionaries. This introduced them to different languages, people, and cultures.

All of the participants’ parents expected them to go to college, and they did. All are passionate about the discipline they teach. Amy, Helen, and Quincy love learning new things and teaching. All have a strong motivation and desire to do well at their profession.

All of the participants were well respected on campus and had both exceptional teaching abilities and longevity in teaching. The faculty that volunteered were also excellent communicators and experts in their disciplines. They were all good teachers and good at reaching their students.

Technology and Pedagogy Are Inseparable

Classrooms are changing as technology is incorporated in new and innovative ways. Computers, SMART Boards, and multimedia projectors are now the norm. Books are offered with access to online assignments, tutorials, quizzes, videos, tests, and more. Not only is the classroom changing as new technologies emerge, but technology continues to evolve to meet the needs and desires of users (Besnoy & Clarke, 2010).
One example of this phenomenon is the Internet. The Internet is now an application-based tool that allows users to create content, post their ideas, and share their experiences. The Internet is a dynamic digital arena where people with any interest can have shared experiences. This new form of Internet is commonly called Web 2.0, and it is fundamentally different than its previous version. Initially, websites were created as dispensers of information for the general public. Now websites serve as social gathering places where people are free to express themselves. Web 2.0 is a collection of Internet-based applications that allow users to easily create and post content. Popular examples of Web 2.0 technology include but are not limited to blogs, wikis, and podcasts. Because of these developments, the Web has gone from being a platform where users were just browsing to a platform where users are now browsing, interacting, and contributing. Essentially, Web 2.0 has transformed users from simple readers to conscientious participants of written discourse (Besnoy & Clarke, 2010).

Web 2.0 also allows computer interfacers to establish and maintain robust Internet sites that enable the average computer user to plug himself/herself into a global society. These platforms allow users with similar interests to locate one another and to establish a purely digital relationship. The most common social networking sites are Facebook®, MySpace®, and LinkedIn®, but there are also sites that cater to education, such as ePals and Classroom 2.0 (Besnoy & Clarke, 2010).

Because technology has progressed so fast, faculty need to be careful that their students do not disengage because they are frustrated trying to figure something out. When Quincy was younger, he used to hate technology. Because of his own experiences, he tries to
create a safe environment for his students. He incorporates technology as much as possible within his classes because he believes that better engages the students. Quincy stated,

If I’m not on guard against that as an instructor, I’m gonna lose students. They are going to unplug in a very real way, you know. And then technology hasn’t helped. It hasn’t done what it is supposed to do.

The following statement describes how Quincy makes meaning from technology and teaching:

Umm, well the way I understand technology and teaching today is, well I see them almost as inseparable, at least for me, because my experience as a faculty member is that I have always tried to do better in the classroom. I used to be very lecture orientated; I was all about content, you know. If my students didn’t get it from me, they were never going to get it, and it would be my fault if Western civilization collapsed, you know. . . . So in my quest to improve and to be a better teacher and try to ignite the same passion in my students that I have towards the material, I’ve been able to do that with technology. It has enabled me to make my classes more like I want them to be and I think more like my students would want them to be too. If they don’t like how the class is going, it doesn’t matter what I am teaching.

The computer and the Internet have transformed Mark’s teaching style also. The Internet allows Mark to locate current material quickly, but the constant changes in technology have created feelings of instability and sometimes a lack of confidence.

Just the Internet alone has transformed how I’m teaching all of my classes, because my examples are now instantaneously available on YouTube, and it’s taken me a while to get used to that because I’m old-fashioned and I tend to still think of tapes and DVDs, and so I will still bring in tapes and DVDs when it is now available online.

And I think we went through a big revolution there. About somewhere between 2004 and 2007 is when all these things started. You know, Facebook, Twitter, everything—it all, everything just exploded right then. And I think we are all feeling that shake out. But I can’t picture us continuing to have to have new things every semester, after semester, after semester. It was like, almost like the Industrial Revolution, where it was just a time period where everything just shifted.

And in the last few years, technology has changed so quickly that it is constantly changing, and I don’t like instability. I like stability; I like to be able to feel like I’ve mastered my technology, that I’m able to share it with students. And then I feel confident. I think I feel less confident as a teacher because there are so
many things going on that I don’t even know what they [students] are referring to sometimes.

Helen also stated that technology is constantly changing and noted how it is not discipline specific now:

It is every discipline and it is never ending, because you do one thing and it is another. I mean, it is constant because it changes so fast. And it is just going to keep changing, right?

Keeping current with technology and trying to figure out what kind of computers, tools, and software work best with what can be a daunting task. There is much information on resources, tools, and technology in general, and it is constantly changing. This can be overwhelming for faculty members who are not digital natives. Diana spoke of the monster that technology has become:

Probably finding stuff [is hardest], because there is so much managing—information management. And there is so much new stuff, constantly. In fact, a student walked out of class with me yesterday and started talking about the new whatever and how fast it’s going. Because once we got touch screen, my goodness, everything was touch, touch, touch. It’s just . . . it’s a monster.

Mark talked of how his majors have become reliant on computers. The entire communication department is now digital. The newspaper is still printed to distribute around campus, but now the school posts an online version too. Both the radio and TV stations are digital, and even the darkroom for photography has gone away over the years.

I would say we are completely reliant on computers, which is very different from what it used to be years ago. We used to have, you know, we’ve got—it is computers. So, if you want to just classify it as that—the Internet?—yes, but it is the computers. Bottom line, the computer transformed this major, because virtually everything in the department now is all computerized. So everything, every aspect of our department, even photography, you know, now is done all on computer.

Without a doubt, the invention of the computer and the Internet has changed the way faculty teach their subject matter. Web 2.0 technologies have transformed users from being
simple Internet browsers to conscientious users who now browse, interact, and contribute content online daily. Because these technologies are part of students’ daily lives, it would greatly benefit faculty in higher education to find ways to incorporate these technologies into their classroom activities for better student interaction and engagement. There are many benefits and barriers to using technology, but it is clear that these technologies are not becoming less prevalent in students’ lives, they are becoming more prevalent.

Pedagogy and Technology

Teaching Style and Technology

Teaching methods and practices using technology varied among the participants. However, none of the participants use continuous lecture as a means of teaching their students. The following are participants’ descriptions of how they typically teach a class:

We do role playing, a lot of think, pair, and share, you know, in groups of two or three. And they go off campus to do clinicals all the time, so they'll talk about their clinical experiences. So, they are each probably doing about 8 hours of clinicals a week in the hospital, and they are in all different places, so lots of times I group them by what hospital they are at. I usually start out with some kind of affirmation and then, um, I might do some catch-up from the following week. If there are announcements or anything like that, I do that. Then I just go right into the content. Before class, they write a one-page paper about some questions that I give them. And they need to write a one-page paper prior to class. (Amy)

Yes, I’m very intentional and structure things the first week of class that gets them into the different areas of the course site and has them do a discussion board post, do a wiki tree, you know, if it is a class we do a wiki in. Send an e-mail to everybody, you know—just get in and start doing a few things, because we are going to be doing this all semester . . .

I try to, try to vary things up. I’ll get them to sometimes start discussion. I’ll have them—I’ll give them a question and let them write on it for a few minutes . . . and then once they have articulated something . . . Sometimes I’ll use stuff that has been up on Blackboard. Beforehand we do asynchronous discussions between classes, and they blog and stuff. So we’ll refer to that to get things started sometimes. Sometimes we’ll watch a little bit of video material and then we’ll react to it. I show art or other sorts of images. So, that is kind of what I try to typically do—a lot of low-stakes writing. (Quincy)
So, we’ll do maybe 20 minutes of content where I will pull out key things that we are talking about and then they’ll do a lab. They’ll do, you know, fitness labs, sit and reach. We do muscular strength, cardiovascular, and we do yoga class.

Really, their big project is to do is a literature review. So, we are in the library working with the librarians twice in the semester, and then they need to be able to pull primary resources and pull that together, and they start writing a literature review. And it is hard for them, very hard. So they have to hand them in three different parts. You know, beginning, and so I give them feedback along the process. So, it’s—I did 20 of those. You know, it is a lot for me to grade, and I do it—they hand them in three times. (Helen)

We study the information in the class, and the outside world is our lab. And so yes, when I define labs to students, it is to tell them, it is to give them a third dimension to the culture. So, they may have to go to a Day of the Dead festival. They may have to watch a movie. They may do a paper on the king of Spain. This semester we did, uh—well I keep fine-tuning—they did interviews, they had to interview people, and I had said they had to interview all Latinos. But this semester I changed it and said, “Okay, you can interview anyone, but your results have to be in Spanish.” Every class is different. I despise predictability because they get bored. (Diana)

I guess you could call my classes participatory lecture. I lecture somewhat. A lot of times we have small-group discussions; periodically I’ll show a DVD or video. Sometimes I’ll throw stuff up on the SMART Board that I have on my computer as examples for small-group work. (John)

Typically my classes are lecture based. There will always be some type of hands-on component since I teach radio and TV classes, which always has something to do with equipment. So, there will be some type of demonstration. Usually three or four times a semester I’ll have to demonstrate some type of equipment. And there would be a couple of times during the semester where I’ll have them do some type of hands-on in-class project together so that they’re both getting to know each other and getting comfortable with the equipment, so that we do both things. (Mark)

Relevance

Relevance is very important to both participants and the students they teach.

Participants do not want to go to training that is not relevant and useful, and similarly, students do not want to learn about things that are not useful to them. Faculty need to show students how the information they are teaching them really applies in the real world, or the students become disengaged. The following statements are a testament to relevance:
My biggest, um, part of my philosophy is that when something is meaningful to you, you want to learn it. If it is not meaningful, huh [sighs], you know. So, I’ve found that the more meaningful I can make something for students, the better the engagement and the better quality of work I get out of them. So, the labs do that.

I have people say I learned French in high school and that was a waste of time, and that really, really saddens me, because they’re just looking for a direct correlation. What you learned in learning French, what you learned is the process of learning. I took algebra; can’t say that I use algebra every day, but yes I do, I just don’t know that I do it. And I was talking to some of the math faculty, and some of our younger math instructors are really starting to see that they need to show students how they’re going to apply it, because the generations coming up, if they don’t see usefulness for something, they pitch it. (Diana)

The ones [training] I’ve gone to were because they were very specific to the skill. You know, like online registration—taught me how to do that, so now I can do it. But things that are just there to—“Here’s something you can learn how to do.” Well, if I can’t use it, if I can’t apply it, if I don’t need it, I’m not going to go to it.

Once again, if it is relevant and if you have it, you need to keep it running at its optimum level. You shouldn’t just put it in and then let everything fall apart, then fix everything and let it fall apart again. (John)

In some ways I have to be more organized with technology because I really have to have some solid, current, up-to-date examples of material. The students today don’t let you fall back on old examples anymore. They want now. They want the latest thing on YouTube. You talk about something even a few years old, some of them won’t even know what you are talking about or they’ll groan. They want what is happening right now. So, in some ways it has made it more work. (Mark)

You know, if somebody could show me something new that I don’t use that would be helpful to me, I’d probably use it. Just knowing about some of the stuff. Like I just called Candy [Blackboard site administrator], or e-mailed Candy, and said, “You know, find me a calendar application.” And that’s when she said, “Try Wiggio,” and I was like, “Oh, okay.” I mean, I think if somebody just showed me what was out there, I’d probably use it. (Amy)

**Motivation and Drive to Learn**

Helen, Quincy, and Amy expressed a strong love of learning and desire to learn, especially about new, useful types of technology tools that will aid in pedagogy practices and make them better teachers:

I love learning new things. I’m just a lifelong learner. Some things I don’t care about, some things I do. So, the things that I care about, I just, like, I can’t get
enough. I enjoy it; it is so stimulating for me to learn about that, and so I want to then be able to share that, teach that, and just dialogue about it. Technology, so that is where technology is. Although it is not necessarily a passion for me, it is a strong desire that I’m as current as I can be, which is a huge struggle for me because it doesn’t come easy for me. (Helen)

Yeah, I mean, now it’s at a point, you know, where I really enjoy staying current, finding out about stuff, new toys. You know, I’m willing to try anything to see if it works. But if I try something and it lets me do what I want to do, and it lets me add to that significant learning experience that I want my classes to be, then yes, I’m willing to incorporate it further if it works. And so, are there ways that I can do that, that I don’t know about? Yes. So yeah, so if I’m able to find out about it and try it, I’ll try anything once. (Quincy)

I do, I love learning. I like teaching things. I really like learning new things. You know, I could be a perpetual student I think, if I could afford it. (Amy)

**Meeting the Students Where They Are**

Quincy reported that he goes out of his way to make sure his students are comfortable and not frustrated using technology in his classes. He believes technology should be a benefit to the class, not create barriers that shut students down.

And so, I have to make sure that as the instructor, I’m meeting my students where they are and that I’m not leaving anybody behind. Because it could be very easy, I think, for a student, because I used to be like that—I used to hate technology. I was a luddite, you know. And, I mean, obviously it was much different when I was in college. But I could see myself, if I was the student, you know, seeing all this stuff, and it is new and I’m not used to it, just, you know—pardon the language—and just saying “screw it.” You know, after a couple of weeks not being able to figure it out and then just disengaging. And so, if I’m not on guard against that as an instructor, I’m gonna lose students. They are going to unplug in a very real way, you know. And then technology hasn’t helped. It hasn’t done what it is supposed to do.

I try to create a space where people feel comfortable, but a lot of times I’ll just kind of—if I notice that someone hasn’t been posting or something, then I’ll kind of come up to them one on one before or after class and say, “Hey, I’ve noticed you haven’t been putting much on Blackboard,” or, “Do you want to sit down and walk through a couple things on the discussion board after class and I can show you some tricks?”

**Rules Concerning Technology Use**
Technology rules and etiquette in classes vary from school to school and instructor to instructor. Both Mark and John have experienced misuse of technology within the classroom. Because of that, they both have explicit rules regarding technology use within their classes.

Well, one of the nice things about rules that I’ve seen amongst college professors here and at other college campuses, because I read the *Chronicle of Higher Education* a lot, is that most people set some pretty strict standards about classroom technology use. Some don’t, but I do. And I know many others do. Mine is no electronic devices are allowed, period—unless you have special permission because of special needs. So they can’t use cell phone, laptop computer, anything like that...

It can be a distraction if the professor, I think, doesn’t have strict rules about it. And that is just going to vary on the college and the classroom. Because I understand where some may not worry about that, but I don’t know how you could teach a class of 600 kids with all of them surfing the Internet while you are trying to lecture. I don’t know how that is possible, but uh, that is not how I operate. (Mark)

I do tell them the first day of class—in fact, I expand and I tell them all their teachers can tell when they are texting because we are up front. We can look under the table. And when they have it on their knee and they keep looking down, we know what they are doing. And I tell them, I said, “And if you do that a lot, I’m not going to like you, so turn it off. Unless you have a life-sustaining app that helps you breathe or something, you don’t need it on for this period of time, twice a week.” And they can’t multitask. There is a lot of research that shows that you cannot multitask when you are on your phone; you aren’t paying attention to what is going on. In fact, some of the research actually shows that driving drunk is actually safer than driving texting. Because at least if you are drunk, you are trying to drive, but if you are texting, you are texting.

It is disrespectful also. Yeah. Especially when you tell them up front the first day and then they go ahead and do it anyway, and they think they are sneaking. All I see is disrespect. Yeah, and then, like I said, I don’t like them. I got this one student who texts the whole time he is there, and then he gets up and leaves early half the time. He just picks up his stuff and walks out. I don’t get it. (John)

**Tools and Resources**

Table 2 provides participant technology usage information at a glance.
**Blackboard—the positives and the negatives.** Blackboard use among participants ranged from extreme to none. Four of the six participants use Blackboard. Amy, Diana, Helen, and Quincy all use Blackboard to varying degrees and for a variety of features.
Table 2

Technology Usage Among Participants

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Whether participants used Blackboard or not, they felt there were both positive and negative aspects to using Blackboard.

**Positives.** Quincy reported using Blackboard the most out of the four participants who use it. Here is how Quincy described using Blackboard within his classes:

I’m pretty intense in Blackboard; I use the learning modules, I use assignment submission, the gradebook, blogs, wikis, um, the announcement section, the course materials section. I time-release certain materials each week. I use the grading feedback feature a lot. They’ll [students will] submit things in a Word document and I’ll mark it up and submit it on Blackboard with feedback. Yeah, so the learning community that Mary [a teacher in the same department] and I do, we’ve gone full Blackboard for our assessment, and they have group discussion boards in their writing groups, and they post their drafts and collaborate with one another. The unit
that rolled out this week has audio files and lyrics for protest songs from the great
depression, and so I embedded them in an MP3 player. So they can listen to them as
they download lyrics and have the transcript right next to them.

Quincy noted that another benefit to using Blackboard is that students have 24/7
access to a secure course site. The course site has all the class content and multiple ways to
communicate with the professor and the entire class. The course site’s function is to house
all the content for the instructor in a website. Quincy explained,

I can load the presentations on Blackboard and the students can look at them later.
Um, but the other big part of it is it allows students to have access to course materials
all the time; they don’t have to be on campus. If they’ve lost their syllabus, they can
go on Blackboard and look at the syllabus and assignments. If they want to get in
touch with me, they can e-mail me through the link on the course page on
Blackboard. Everything they submit is secure. There are ways that we can do class
communication but also communicate one on one.

Helen, Amy, and Diana use Blackboard as a repository for class content and grades.
Additional Blackboard features they like are the discussion board, calendar, and
announcements.

Yes, and I post everything on Blackboard. I do the grades, I do all the contents on
there, which, within our department, that doesn’t happen. . . . In the internship class, I
use discussion board. We do meet as a class, but not every week. And they
[students] are to update me weekly on what they’re doing—e-mail with that. But
then there is discussion board and they are to post three different times. And after
posting, they are supposed to discuss with each other, discuss about each other.
(Helen)

I use the content area for just stuff. And then I have a discussion board, and then I
use the survey for the Plus Delta, and I use gradebook. (Amy)

Ahh, yes. This semester I’ve put my classes on Blackboard again. I’m learning one
trick at a time. I do the grades on there. I put announcements up. Um, I haven’t
done as much as I want to do, because I just need to learn a little bit at a time. (Diana)

**Negatives.** Mark has attended Blackboard training at Midwestern but chooses not to
use it in his classes. Mark had an opportunity to see how it was used in a class his wife
attended at Midwestern. Because of her experience, he felt that Blackboard was being
misused to overload students with a lot of content, and he saw the anxiety that his wife
experienced. He later stated that if he used Blackboard it might be easier. The following are
his comments:

I’m going to say one other thing: I don’t think students are as interested in technology
as we think they are. My perception of students is that they like the technology for
the fun stuff—the entertainment and the social media. But when it comes to class,
I’m not getting an overwhelming amount of students begging me to use Blackboard.
I’ve never had one student say, “Please use Blackboard in this class.” All I’ve heard
is groans about Blackboard where a student will say it really overwhelms them with
work or a student says, “I need help; I can’t figure out how it works.”

I went to the Blackboard training, and my wife is actually taking classes at
Midwestern. She’s completing a nursing degree here. And I saw how she was forced
to utilize Blackboard, and I absolutely hated it. I understand it’s great for certain
people. For me, that’s not me. It is just not my style. I thought it added dramatically
to her workload and it made it much more difficult for her. Some people think
because of Blackboard that you can just dump lots of work on students. It is way too
much work, and that is just not my style. So, I went to the training and made a
conscious choice not to use it, even though I understand many people feel it is a
benefit.

Well, and it might be that if I used Blackboard, it would be easier for me. The
problem is I saw how the teacher used it in my wife’s class, and I just thought, “This
is ridiculous. This is way too much work.”

Diana would like additional Blackboard training but continues to use the course
management system to the best of her abilities. She stated that she is learning a little bit
every day. She said she has to be careful not to blame herself, because sometimes
technology does not work because of things that are out of her control. She provided the
following example:

I’m also learning that if I get frustrated with something—I was very frustrated with
Blackboard yesterday. I was trying to change my syllabus at home, and I could not
get the changes. I did it 10 times. When I got to my office, it showed me a little
screen that I did not see at home. Now I have to find out if I can do something
different that will give the access at home or if I have to be on the network. And so
many times I blame myself for not knowing something, when it is actually not my
own fault; it is that I don’t know what capabilities I have off campus and on campus.
John’s experience with students and Blackboard is that some of them do not use it in a timely fashion. If he requires them to post on the discussion board and does not give them a deadline, they will wait until the end of the class and post just to meet the class requirements. He explained,

“You know, the discussion board, the whole idea in logos is that it is a seminar where we read and talk about things. So, when I put up a question that is relevant to what we have talked about that day in class, and it is part of their grade to do the discussion board . . . But some of them will wait until almost the end of the semester and then try to go back to things that we’d talked about, you know, 12 weeks earlier and just to get it done. It is no longer relevant to anything.

John was undecided as to whether Blackboard has a positive or negative impact on his classes:

The Blackboard things, uh, I’m not sure. I mean, I’ve done the little training thing. I’m not sure if all that adds or detracts. Sometimes I e-mail articles to students and things like that for them to read.

**Modes of communication.** By far, e-mail is used as the main mode of communicating with students outside of class. All of the participants use e-mail to correspond with students in their classes. This feature is utilized through Datatel at Midwestern. Faculty can use the “e-mail class” feature to e-mail the entire class or individual students easily. Faculty members also have access to easily e-mail any of their classes if they use Blackboard. Four of the six participants reported that they text students, but they explained that in most cases they are the respondent.

Instead of using the “announcements” feature in Blackboard, Helen prefers to send out an e-mail to her classes. When asked if she e-mails her students, she replied,

Um hum, yes, well I love—I just did last night, e-mail classes. So, I e-mail the whole class. And I get responses from students. I know some don’t look at it, but I do get
responses from students. I do that a lot. I don’t use . . . any announcements in Blackboard. If I have announcements, I send them an e-mail.

Amy said modern communication makes her more accessible to her students. Most of her students e-mail her, but more and more they are text messaging her. This also adds convenience for her, because she can respond instantly or wait to respond until she is not busy. She noted,

Yes, I think I’m always available, whether that is good or bad. Yes, it makes you always available, and I do like that because I like knowing what is going on. And if they have questions, I don’t want to have to have them wait. ’Cause if I’m in class, or with another patient, or with another student, then they know that you know. So, that has changed a lot. I feel like I am able to be more accessible to people, not just to students but to nurses who work with our students. You know, they all use that technology. As far as in my life, I guess it is the same thing; I’m more accessible to my family.

When participants were asked, “Do you text your students?” their responses indicated various levels of communication through technology:

Absolutely. I even tweet them. I have a couple of students on Twitter, so that’s kind of fun. (Diana)

I have with some. Some of them have my cell phone number; they’ll text me and I’ll text them back. While I don’t often initiate it, I will respond to it. (Quincy)

Yes, and they text me. . . . It is just in the last couple of years that students have been texting me. So, the ability to give them feedback very quickly, it has just been good because, you know, I think they need that feedback to learn. Before, I had to wait a week or so till I saw them again, or till I graded the paper or whatever. Now, I can give them feedback about, like, I have an assignment due on Thursday and somebody texted me today, “Now tell me again about what you meant by that third sentence?” which before would have meant a phone call, and what if I wasn’t there? It is just so much more convenient. And then it doesn’t interrupt me, you know, if I’m in the middle of something; I can do the text later. I don’t have to wait for them to be there at their phone and all that stuff. (Amy)

Mark uses e-mail as a form of communication outside of class but never texts his students. He described his refusal to text as a way to maintain boundaries with the students:
No. I don’t believe in personal texting with the students. Sorry. I’m from the generation where there are certain privacy boundaries, and I keep those. Another question would be Facebook. I don’t know if that is on there, but am I Facebook friends with current students? Absolutely not. I believe in boundaries. Now, I understand if I were starting out today that would be very different, because people expect that.

While e-mail is still the most widely used form of communication between students and faculty, there is increased use of texting using regular/smart phones and messaging through social networking sites such as Facebook and Twitter. All six participants have Facebook accounts but do not “friend” current students—they only friend alumni, if anyone. Their main use of Facebook is to connect with other family members, especially their children, and other colleagues.

But I don’t put a lot on there because I don’t want a lot on there. Well, here is the other thing: I mean, I have it, you know, I’m friends with my kids and stuff. And they are very . . . there is nothing on there that they wouldn’t want me to see. But I’m on there. So, I don’t want to be doing a lot of things so they know that I’m on there all the time. You know, so I mean, I’ll be looking at stuff, but I don’t want to post a lot of stuff. (Helen)

I don’t friend current students, but once they graduate, they often request that I be their friend; I never request them. Sometimes I deny the request—depends on how I feel about the student—but usually I accept the request and use it as a way to keep up with them and their careers. (Amy)

**The Internet as a tool and a resource.** Every participant reported using the Internet to view external websites to show content that relates to the discipline they teach in classes.

Diana made a great observation about technology:

What is going to get me the biggest student engagement and involvement? It’s like we talked before, if every single class is PowerPoint, they get bored with it. If every single class is even SMART Board, they get bored with it. And so the question you need to ask is, for whatever it is you’re trying to teach—and it’s the same question we used to ask for 100 years—do we draw in the sand? Or do we heal the blind man? Do we—you know, what I’m saying? What do we do to get our point across?
External websites, textbooks, and the library. The following statements from the participants describe different ways in which they use the Internet in their teaching and learning styles:

In the classroom, I use a lot of Internet. So we look at a lot of examples on YouTube. I show them a lot of audio examples on the Internet of people who have done commercials and DJ shows. And I find that I’m using, basically using the computer with Internet access and the overhead to put it up on the big screen. I’m using that now almost every class period. At first, I was probably using it a couple of times a semester. But now the students just expect it and ask for it.

Oh yeah, the books I use from Pearson have a companion site called My History Lab, which is content geared specifically towards the text. It’s got a ton of primary source documents, interactive maps, podcasts, etc. They [students] get it free. So they have semester-long access for no additional charge. And I create an online class space in that environment, and they can take practice quizzes and study materials. It gives them feedback and I can give them feedback. It’s also got a complete e-version of the textbook that they can put notes in and highlight and share with people in the class. You know, share their notes and highlighting if they have study groups. (Mark)

Obviously the Internet, YouTube is a great resource. Langue Hero. There are some websites that we have students go to. Livemocha.com is where they can—they’re like social networks, but they are not like Facebook. I mean, they actually get to speak with native speakers. And Langue Hero is where they can, they can actually, um, again hook up; they can write something in Spanish and native speakers will correct them. And that’s a real easy lab for me.

We explore Google. The world of Google is huge with what they do with translating all pages and how they don’t translate some parts that are embedded that can’t be translated, so students learn that. (Diana)

And one example was at this conference was a site I learned about called O’Mecca, which is online you can build an exhibit of archival materials. And it is basically, it is hosted and supported by the Center for History and New Media at George Mason. And so you create an account, and you can upload documents, you can digitize documents and create an exhibit space. And so students can come at it with, “How am I going to create this exhibition, and design it, and present it visually? Is the metadata in the document? Is it archival standards?” And so on. (Quincy)

With the explosion of the Internet came new options for professors when choosing textbooks for classes. Many textbooks have an online component or companion website that
requires additional fees; however, some provide technology supplements for free. The options faculty will find in textbooks depend on the discipline and the publisher.

They do, they [companion websites] all require a fee [in addition to the cost of the textbook]. . . . I can get access to the instructor resources, but the students have to pay. So I don’t require them to. . . . Now, some of the books have some stuff on the website, but it is pretty minimal. It’s not interactive or anything, you know, which is what I’d like. So that’s not that much help to them. (Amy)

Most textbooks now have some kind of website that goes along with it. Now, the problem with it is, though, that a lot of the textbooks that do that, they only do it if you buy the new book. And that bothers me. You know, especially like the developmental stuff. We haven’t evolved that much in 2 years. So why should I keep getting the new text all the time when I can get used ones with the exact same information? But then the kids don’t get access to the website. But instead of spending $150 a book, they can get one for $70. They have all these things that they offer, but only if you are willing to spend more. (John)

Flash Cultura [book] . . . is really cool because it’s always got a piece of the culture. And then they’ll have a short video clip, and it has film collections. Both of my books are with the same company. It is Vista Higher Learning; it’s a smaller company, but I like it because the reps are very personal. They include a lot of technology, from tests to assignments to extra reading materials to tutorials. (Diana)

The library staff are always available to meet with individual students or classes. Faculty call the library to set up a time to bring their class, and staff will teach students about a range of different topics, such as information literacy, references, researching, copyright, plagiarism, and so forth. All the professors have to do is show up with their class, and the library does the rest. John and Quincy stated that they utilize the library and its staff for showing students how to find materials, both electronic and hard copy.

I bring them [students] to the library whenever it works, and sometimes I bring the librarian into the classroom to show them how to find things online and in the library. (John)

Technology has made it so much easier to do things, with inter-library loan and digitized materials, that it has become less of an issue. (Quincy)
Digital tools and simulations. The following are ways in which participants require students to use digital tools to complete class projects. Digital tools and simulations help students learn real life skills and provide a safety net so that no one is hurt in the learning process.

One thing, another thing I forget we use—I have students videotape a physical exam on another student. We have some—gosh, what are those little cameras called?—oh, flip cameras, and so I get those from Candy. I think we bought one from downstairs, and then we have a hard drive I put it on downstairs and I look at them. I put them on their [students’] thumb drives; they can put them in their portfolio if they want, because they critique themselves then. It’s a good teaching tool. A videotape is a good teaching tool. I have the graduate students use it too. They have to teach a class, and they videotape themselves with a little flip camera, because it is so easy.

And we do simulations. I mean, that is a big technology. We do that at Iowa Health Systems. And so they have a sim lab that is just unbelievable. They have pretend patients that have a pulse, respiration, and they talk. Yeah, like I was a patient today. So, I was in another room and they’d come in and greet me. And then I said, “You know, I’m having chest pain. I feel like this,” and I could then make my pulse go down, so yeah, and your breathing stop. So, it was very good, very cool for them. And they are very good at suspending reality. I mean, they can make it real. It is nonthreatening, very nonthreatening. You don’t kill anybody. (Amy)

For example, what I’ll do is this week they had a rough draft due of a video that they’re doing. They’re doing what is called a corporate music video; it’s a music video for a company. It could be for Midwestern University, it could be for a business—something that they can post online, something that’s supposed to go viral. Those videos are kind of a hot thing now. Companies are trying to do it; cities are doing it, where they’re doing viral videos with music and trying to get people interested in their city. (Mark)

Digital tools give students instant access to virtually limitless information in a small portable device that can go to work and to school with them. Amy and Diana provided some examples:

Nursing students all have to have some kind of PDA [personal digital assistant]. They all have an iPod usually, and um, or most of them, I should say, now all have iPhones, and they just put the apps on it. But we make them buy, and they want to buy, uh, it has a medical dictionary, it has procedures, and it has all the drugs. It has all these applications. So let’s say your patient is on a certain drug, so you can look it up right there, find out the usual dosages, all the implications. Oh yeah, you have to
have that. Yes, because when there are 3,000 drugs, there is no way anybody can know them. [Before this technology was available,] we had a little book—a huge book actually. Every unit had one, and it just sat there. I still have a couple of books in my office. (Amy)

There are all kinds of apps for phones now, and I have Spandictionary on my iPhone, which is very good. The nursing students were showing me what they have on their phones so that they can do medications and basic phrases. Um, one of my athletes was so excited because he found a dictionary online for equipment. (Diana)

**Presentations using technology.** All of the participants said they require presentations of some kind in their classes. Helen and Diana gave examples of how their students use technology during class presentations:

So then they will be doing presentations, pulling things in and doing a presentation using technology. They need to present their lit review to the rest of the class, and they need to use technology. They have to do something visual, and I would prefer them to do a PowerPoint, but they have to get up and speak, and then they have to have some visual for us, rather than a handout. The seniors, they do present. It’s kind of a big part of our program. Every class they have to do presentations. (Helen)

They had to give a presentation about family. And I told them they could either bring pictures, we could use the Elmo, or they could do a PowerPoint. But I said, “There is no excuse for you not doing this. If you don’t have pictures of your family, you can draw them. I don’t care, because what I care about is the language. You can draw stick figures for all I care, but it is good for us to have something to look at.” And so one of the students did ask if she could use the SMART Board, and she made some really cute cartoon pictures of her family. And it worked great. (Diana)

**Technology and the future.** All of the participants indicated that they believe that technology is not going away and that it is only getting better and easier. Most feel that the future holds promise of new and unique digital tools that will enhance work and education like never before. When Amy was asked if technology will remain in her future, her response was,

Oh, absolutely, and I think every nurse will have some kind of digital device with them. Soon all the recordkeeping will be computerized. It is, like at Mary Greeley it is. At the VA it is. The hospitals here in town are working on it. The big ones are working on it. Within the next few years, there won’t be any paper left to write on. It
will all be data entry. And I think nurses will probably have something that, you
know, like an iPad, something, or they will carry a [digital] notebook around with
them—something that they will be able to chart easily.

And also I think as far as technology, as far as what we have for practice, we
do simulations now with all those mannequins, and you know, those mannequins are
only getting more and more sophisticated. They have all sorts of cool stuff now. I
think we’ll have more and more of that. Students are very comfortable with
technology, that is for sure.

Mark feels we are in the midst of a technological revolution, and in the future, people
may constantly be retraining themselves on new and better technologies. He explained,

We are in a period now of technological instability where what we learn today might
actually not be the final word; it might be just a stepping stone to something else, to
something else, to something else. I think that is because we are all just part of this
technological revolution, and we are just in the midst of it. And at some point it all
has to level out and calm down and everything come back to normal, hopefully.

Summary

The participants are all unique in their use of technology in their teaching style.
Every participant uses technology to varying degrees and for various purposes, but all the
participants use it at least weekly, if not in every class, in some way. Proper etiquette and
rules regarding technology need to be discussed to help reduce technology misuse by
students during class time. There are many tools and resources that can be utilized for
teaching and learning, and these tools can greatly enhance the educational experience.

Showing examples on the Internet that relate to class material is a practice that all
participants use. Also, some textbooks now have online components or companion websites
where students can access tutorials, videos, interactive learning modules, and more. In
addition, the library at Midwestern now has Films on Demand, where a professor can order a
movie that relates to class content, and online digitized materials. Digital tools and
simulations give students access to information instantly and allow students to learn real-
world practices without hurting anyone (for example, when nursing students learn to treat patients). In addition, the computer, the Internet, and its plethora of resources open up a world of possibilities for students giving class presentations using technology.

Regardless of the technology used, relevance to real life was cited by participants as one of the most important aspects in learning. They seek training that is relevant and useful, that either helps them do their job or helps them teach students in a better way. Participants also agreed that students need to see the relevance of their projects and need to be shown how the learning is applied in the real world, or they will become disengaged.

In addition to changing their teaching methods, technology is also changing the way professors communicate with their students outside of class, as well as the way students communicate with each other. Participants reported using e-mail for most communication outside of class with students, but text messaging is becoming more common. In addition, social networking sites allow students to connect and collaborate. This changes the way the Internet can be used for teaching and learning.

Throughout the interviews, it was clear that motivation, drive, and love of learning are instilled in all the participants. They all have a strong desire to stay current within their discipline and are using technology to do it. With additional training and support, all of these participants would do amazing things with their students and technology.

**Benefits and Barriers to Using Technology**

**Benefits**

24/7 access and accountability. Students can be more self-directed when faculty use Blackboard in their classes. The students can access class materials, submit content, e-mail other classmates, use the discussion board, and look up their grades at any time of the day or
night, 7 days a week. Helen stated that she utilizes many of the course management features in Blackboard and especially likes the calendar to keep her students on track. She also benefits from using Blackboard because it keeps everything organized and in one secure location for both her and her students.

Well, the benefits definitely are that students can be more self-directed. If they lost something, I do hand out paper copies at the beginning of the year. I pull up Blackboard almost every time we meet to see the schedule, because we are just lab, lab, lab, class, lab. So, if they don’t look, they are not prepared. And then someone will ask about an assignment—okay, like yesterday, I pulled that up and it was on the back of the syllabus, “Here’s the rubric, here’s the requirements.” So, it is right there. So I can just pull that up. I don’t think we could cover what we cover and keep everybody prepared if we didn’t have it. It takes so much time if you don’t have that; you’re fumbling through, or pull this out, or talking about it but they don’t have a visual of it. So it’s a timesaver. It is a huge timesaver.

Amy and Quincy agreed with Helen that Blackboard makes communicating and locating class information more convenient for everyone. With everything stored on Blackboard, students do not have an excuse for not getting their work done and turned in, which tends to make students more accountable.

Oh yeah, the students have greater access, also better access to their grades. That’s another thing I really love is, you know, I’ve got the gradebook right there on Blackboard; they can find out their scores as soon as I grade it. And there is none of that people coming into my office, “Now, tell me what my grade is.” “How many more points do I need to get an A?” And I’m like, you know, I don’t have to figure; no one ever asks me that anymore. You know, plus it makes them more accountable. . . .

You know, they’ll e-mail me stuff and I’ll comment, grade it, and return it to them. But I still do a lot with hard copies, just because I like to be able to write on it more and I like the idea of giving them back a piece of paper. I don’t know. (Amy)

Yes, I stipulate up front in the syllabus [that] anything that goes on Blackboard or goes out through e-mail, they are responsible for. If they’re not in class, they should be checking these sites regularly. You need to check your Midwestern mail account or send it to forward somewhere else. And anytime I post something new on Blackboard, I’ll send an e-mail out, you know, “Hey, in the content section I’ve posted these two things. You know, just a reminder you need to have it looked at by Tuesday.” You know, that kind of stuff. So yeah, it does let me, you know—people
who haven’t been in class and don’t do the work can’t say—they know they are accountable, and I’m pretty clear about it. (Quincy)

**Time.** Quincy indicated that he feels that technology has improved enough that it does not take much time to get things set up and get them going. He also brought up a good point that it is okay to mess things up once in a while; that is how one learns.

The improvement in technology is such that you don’t have to do a lot of the legwork like you used to, to getting things set up. You just sort of fire it up and go. And that’s . . . Yeah, you know, we tell our students, I mean, it’s okay to screw things up once in a while. I mean, it happens and you learn from it.

Amy admitted that it may take a little time up front to learn technology, but she feels that once a person has that knowledge, he/she can accomplish more than he/she could have without it. She also noted that technology allows users to meet people and see different places without ever leaving home:

Once you learn it, you can accomplish a lot in a short period of time. Um, obviously for language it is global. It’s national. It’s statewide. I can e-mail, uh, you know, five native speakers and say, “How do you say ‘crack in the windshield’?” and we got five different responses. So, the accessibility to other people, to cultures, to information, and language is wonderful.

Diana also mentioned that if a person does not know what he/she is doing with technology, he/she can tie up a lot of time trying to figure something out:

Yes, it does save time. That is why I wish we had attendance, you know, for the whole semester online. It can, it can save time, and like I said, if you know what you are doing. Because you know very well, if you don’t know what you are doing, you can spend hours of time, just like I did, trying to resize a photo, and I still don’t know if I did it right.

Amy agreed that technology is a timesaver once a person figures it out, but she also likes to incorporate technology because it allows her to add variety to her classes:

Yes, oh yes. I always try to be an early adopter. So, any kind of technology that we have I try to use. I think students like technology. I like it because it is easier usually. I mean, there is some beginning up-front time that you have to put in, but in
the end it is usually faster. And it provides so much more variety; you know, you can do things in a different way. Students are used to variety too.

While John agreed that technology saves time, he feels that technology has advanced beyond man’s uses for it and that sometimes instructors use it just to be using it, when really technology just causes more distraction for students:

Sometimes it is speed. But I have a—my own personal belief is [that] technology itself has outpaced what we know how to do with it. And so I think there are a lot of technologies out there, and everybody is running around trying to stick them into their classes, and sometimes I think they are more of a hindrance or a distracter than they are helping.

John went on to say that just because a student does something fast does not necessarily mean it is going to be good. Students may know how to use technology quickly to access the information they need, but that does not necessarily mean they will know what to do with it once they get it.

I know that students like all the technology, and they are kind of wired that way, and so they are always using it, so it’s something they are comfortable with. But you know, if you have an assignment like I told you about earlier—that case study—if you have a case study assignment and a student can find all their sources really, really fast, or you have a case study assignment and it takes them hours and hours and hours in the library to find their sources. If they don’t know what to do with the sources once they get them, it really doesn’t matter if they get them fast or if it takes them a long time. Speed doesn’t necessarily mean good. It just means fast.

Amy did not have the same perception as other participants that technology saves time. In fact, she stated that she utilizes the library and its staff to help her with technology in her classes. Amy mentioned that finding the time to locate technology resources and tools is time consuming, and so she seeks the library to help her students:

I’ve been kind of getting some help from the library. At least helping them [students] find sites to help them with all that stuff. But I just don’t have time to do all that. I don’t even have time to go look for it all, you know.
Helen said that she gets frustrated using the grading feature in Blackboard. Figuring out what she needs to do is too time-consuming and causes her frustration. For her, technology can be time-intensive:

One small thing: Blackboard, we switched to Blackboard, and I know it is, you know, helpful. I mean, I know people are helpful and all that. I’m doing the gradebook, and I’m like, I cannot figure out how to—well, I mean, I can’t figure it out without spending some time trying to figure it out. And I haven’t spent the time to figure it out because I’m so dang busy doing other stuff, like advising 35 people.

The participants all agreed that technology impacts their time, either in a positive or negative way.

Variety. Technology allows faculty to visually display content in class, which makes class material more engaging and easier to follow. It also gives the professors and students an opportunity to look at material at the same time from different locations for discussion. Technology aids in student collaboration through the process of creating wikis, discussion boards, and blogs. Quincy feels that because of technology, his classes are more engaging and interactive:

Well, for history, I mean, there are ways that I can present materials that are so much more interesting than just talking about it. If you can put an image or a face with something, if you can look at something spatially on a map, you know. So for me, technology allows our class time to be more compelling, because multimedia stuff is the way to go if you can do it. And it allows me to make a lot more available to students. I can link them to other websites, I can have them look at interactive maps, I can send them to a museum that has put an exhibition online—like there is one virtual Jamestown, one site that I use.

Amy agreed with Quincy. Not only does technology add variety to class time, but it also aids in scheduling the various nursing clinicals for her students. Because she and her nursing students use Wiggio (online calendar), all she has to do is look online to see when and where the students will be doing their clinicals. It makes scheduling convenient and
helps her students be responsible for managing their personal calendar. She described how technology helps:

Well, it’s the variety, part of it’s the variety, and I don’t like to lecture. So, I use a lot of discussion; so the technology, it can help with the discussion a lot. I guess I can write them up on the board, but it’s just easier to put it up on the display if I have a picture or a scenario; then everybody can read it. Or if I do test questions, multiple-choice questions, we can go through it and answer it, and see how they did, because they’re all on programs, you know, that will automatically grade it and put up the rationale.

So, they have all these varied times. So, Wiggio is a calendar. And so they are responsible for putting all their times on the calendar. And then I can just pull up that calendar. And every day I know where everybody is. So, like I can tell you who is doing clinical today and where. And that way, then I go visit people every day.

Quincy stated that history can be a solitary subject, but with the help of technology, students can easily carry on the discussion outside of the classroom. Writing is a constant activity in his classes, and blogs, wikis, and the discussion boards allow his students to write in a less formal, nonthreatening way:

And it allows students, you know, we can carry the discussion outside of the classroom with discussion board threads and blogs. And I want them to write a lot. It doesn’t have to be formal, high-stakes writing all the time. So that’s most of my class writing is quick-hit blogs, wiki stuff, discussion board posts, but they are writing a lot. Historical research can often be such a solitary project, so anything you can do to introduce any sort of discussion or collaboration is huge.

**Convenience.** Technology adds convenience because larger groups can look at materials at the same time, and individuals also have access to the materials for later use. For instance, if a student misses class, he/she can access the-course management system (WebCT or Blackboard) and retrieve what he/she missed in class without contacting other students in the class or the instructor. The following passage from Amy speaks about ways that technology increases efficiency in the classroom:

Oh, it’s a real timesaver, plus also I don’t have to make copies of everything. I never use an overhead anymore like I used to. You know, it is just very convenient. Plus,
that whole, the whole video capability. You know, pulling things off of YouTube or the Internet, some other vehicle, then that makes it so much easier too. It’s so much faster. Then they can see it easier. Convenience.

I think technology and teaching provides me a way to give feedback to students in a real formative way. You know, just say, “Okay, this is how you need to correct things.” They get their grades sooner. They can get feedback from me sooner. They give feedback to me quickly. You know, they all text me now. I got a text the other morning at 6 in the morning about, you know, what was happening at clinical. That is great. I mean, that wouldn’t have happened 10 years ago. It wouldn’t have even happened 5 years ago. It is just in the last couple of years that students have been texting me.

Amy stated that technology also adds safety. Simulations provide a way for nursing students to practice on live subjects without hurting them. This promotes real-life training without harm for the student or the subject:

Simulations provide a safety net. If you make a mistake, you make a mistake. You don’t kill anybody. You just learn from that as opposed to hurting somebody, which hopefully you don’t do because you have done it enough on a simulator.

**Barriers**

**Unreliability.** Technology adds time and frustration when it does not work. All of the participants felt that technology can be counterproductive when they take extra time to make sure their lesson is prepared and then they go to use technology and for some reason it does not work. John said that technology only works about half the time:

Currently, I would say technology and teaching now is more of a hindrance than it is a help. I think technology has advanced to a pretty decent degree as far as what it can do. But I don’t think it has advanced very much as far as the quality of the hardware so you can count on it. So, there is nothing worse for me when I’m trying to do something with it and have it freeze up on me, or not even boot up. Somehow it doesn’t work correctly, and unless it is very simple technology, like an Elmo, at least probably 50% of the time, it is not gonna do what I want it to do. So, I can’t count on it. So, I use less of it than I otherwise would.

John shared similar thoughts on working with computers:

That is another downside: sometimes they don’t, sometimes they freeze up, sometimes they are down altogether. And again, technology is way cool, but what we
have as far as ideas for technology has advanced, but we still haven’t been able to create a computer that doesn’t shut down or freeze on you sometimes. And to me, that makes it counterproductive.

You know, we got all these dry erase white boards and we have magic markers. I guess it’s cleaner because there are computers in the classroom. But magic markers dry up so quickly. I have to bring a whole pocket full of them to class and hope that a couple of them work. You know, and chalk, you can always tell when it’s running out because it gets shorter. I never had a problem when I used chalk.

Both Amy and Quincy reiterated John’s comments:

Well, the only drawback I can see about using technology in the classroom is when it doesn’t work. There is nothing worse than when you are all set—and that is what I’ve found, I’m really good. If I’m gonna show something during class or after break, I always try to make sure I go down there before class and set everything up, and make sure it is all there. . . . So, I’m always good getting to class 15 minutes beforehand to just kind of make sure everything works. And the same way, if I show it after break—during the break, then that is what I’ll do, I’ll make sure it is all set, because I hate it when it doesn’t work. You know, and the students hate it too. You know, they are like, “Oh, it didn’t work!” They are, like, looking at the display and saying, “Hit this button.” And I’m like, “Shut up.” (Amy)

First and foremost, there’s always if something doesn’t work the way you planned it to work, you better have Plan B. And I’ve been in some situations where that hasn’t been the case. You know, it is sort of the Murphy’s Law—the one time you aren’t prepared for something to go wrong, it will. (Quincy)

**Keeping current.** With technology constantly changing, it can be a challenge for educational institutions and faculty to keep up. Quincy reported that he works hard to stay current both in his discipline and in learning new technologies that will aid pedagogy:

If you are a teacher, you should be open to the idea of improving your teaching, whether it’s using technology or not. You know, if you want to get better at pedagogy—and it is like any other field, there is good research done on it, there are good studies, you know—get into the literature and see what people are doing. There are so many studies out there. And for someone like me, who uses technology, it is the same thing. I need to be up to date if I want to be effective in using it.

To me, it’s the same requirement as staying current in history. You know, it is sort of my professional obligation as an educator; if I am going to use these things, I need to know how to use them and need to stay current in them and to make sure that the tools I am using are appropriate and genuinely helpful for my students and the
best ones available to do that. And if there is something better, then . . . yeah, you know, why not check it out?

While Quincy made a valid point about the importance of staying current with technology, the reality is that faculty have limited time and resources to help them do that. Helen feels that Midwestern is behind because there are no online offerings for the students. She stated she would also like more support and training related to technology and teaching online. She feels that she is limited because of her lack of training and support within the university:

So, you look at Midwestern University, and we’re not there at all. So, we don’t have online classes. So, everybody else has got them. We have students ask, “So, what do you have online?” So, we are not keeping up. And we are not accommodating those students who aren’t going to do their whole degree that way but want a class or two online. So, they are going to community colleges or they are going somewhere else. And we are losing that potential.

Helen offered other ways the institution could improve technology support:

My daughter, who goes to a Division III school in Minnesota, she is in the nursing program. And I don’t know what they have here, but I’m just saying, you know, if a faculty member is going to be gone, or if they are at a conference, you know, they have got a podcast that they have taped, and so they [students] listen to that. And I know we could probably do that here, and that is probably coming, but that is not even in the discussion here. So when we are gone, we do another type of activity that, you know, is okay, but it is just, we—that is our next step. And to stay current, that is something that we as an institution want to keep investing in.

Another connection Helen made was,

As I’m looking ahead in the future, I want to be able to do other trainings, or other things that aren’t here. It’s that I don’t have that option of maybe doing some online classes or blended classes, which I would like to do, which would give me more flexibility to do more research or more training and other things. So, it is keeping me tied here and limiting my ability to go out and promote Midwestern in a different way.

Mark feels that Midwestern is making progress meeting technology needs, but he agreed that there is a definite need for keeping the institution current. He suggested that
faculty are not as behind in using technology when compared to students as they think they are:

So I do have to say there is progress. I think our administration underestimates our technology needs, and I think they have been getting slowly onboard. But we are definitely not ahead. We are definitely catching up. It is better than it used to be, but we’ve got a lot of catch-up to do.

Uh, and I get this sense that we as educators are thinking we’ve got to be ahead, we’ve always got to stay ahead of technology, and so we’ve got to keep up with the students. I think we are ahead of the students. I’m shocked when I sit in class and talk about things like Skype, and most of the students have never Skyped. And I’m going, “What do you mean you’ve never Skyped?” You know, or even things like Twitter; we just kind of [assume] well everybody uses Twitter. No, no, not necessarily. Everybody doesn’t use Twitter. Um, some people do.

**Lack of critical thinking and mental laziness.** As mentioned in the literature review, millennial students are multitaskers who prefer interactivity and working in groups. They are active users who like visual and kinetic learning rather than reading text. They like structure yet lack patience. With these characteristics, it is natural that there would be negative implications due to their learning styles.

John feels that he has to fight for his students’ attention, so much so that it detracts from his classes. He argued that just because they are not paying attention should not mean that he has to work twice as hard to make sure they understand the material:

Without all the temptations and portability of technology, it was easier, because students didn’t have it fighting for their attention. If they were in class, the only sound they heard was the teacher, and the only visuals they had was what the teacher had. It was either pay attention or sleep. Now, with so many portable technology things, they can have ear buds in, listening to music, and they could be watching something else on their computer. They’ve got all these other things vying for their attention. And unless you are going to be a stand-up comic, it is very hard to compete with all that. To me, technology detracts.

Well, if you had asked me this yesterday, I would have said I have to get a different job, because students made me so mad because they text and they play with their computer and do all their techie stuff in class, without paying attention to class. And if they aren’t willing to do the work, I shouldn’t have to work twice as hard as
they do. But I’ve had a night to sleep on it so . . . I’ve toyed with the idea of having a basket that they [students] can put their gadgets in.

John said that visual aids shut down students’ thinking abilities and turn them into robots who try to write out whatever they see on the screen. It slows John down in his delivery, because some students are still copying the material when he is ready to go on.

John said that even if he gives them a shorter definition during the lecture, they still write the longer one that is on the slide.

Once I put something up there, their attention is no longer on me. They try to copy down everything they see. They don’t hear what I say. They don’t hear my explanations, they don’t hear anything that I’m doing because, “Ohhh, here’s something electronic that I need to copy down.” And so it takes away, again, from the class. It doesn’t add to it. If I give them a big long definition and I simplify that definition, they don’t write what I say. They try to write the big thing that they see in front of them. And then when I’m ready to go on to something else, they’re not ready yet because they have to finish copying. It takes away from the class.

Diana made similar statements. She said that students tend to rush through technology, not thinking about it, or cannot keep up. It causes frustration for both her and her students. She also said that college students are tired and want to zone out during lecture classes. However, she does not allow that, because they are required to participate in her classes by working in groups and pairs.

But that would be the drawback is that they are starting to click, click, click, do things too quickly and perhaps don’t think about it. The other thing is their attention span. I see myself getting more and more tired as I teach, because I have to do so many more activities because, and if you have to wait . . . you know, like yesterday I was going too fast to go between the Elmo and the PowerPoint and the screen. And so I was too impatient. And they can hardly stand it, you know, and if you can’t do that, there’s an attitude that develops.

College students want to come in and sleep, and they are used to lecture classes where they can zone out. And so when they come to a language classroom where I make them work in pairs, I make them work in groups, I make them participate. We do many different activities within a given period. So, and I love the fact that really, you know, they are much more amenable; I like that part.
John made a similar statement about how students use technology without thinking about what they are doing:

In a lot of ways I think mental laziness. If you can click a button, you don’t have to think about much. And especially on the online stuff, they already have links to other things, and so students don’t even have to think about links, they just have to click on them and it takes them there.

I think students are smarter now in their surface knowledge, but they are more ignorant at the same time, because they’ve been so wired for so long and they’ve seen so many visual images of things that on the surface they think they know a lot. And they might on the surface. But because of that, and the way our brain is put together for visual stuff, they aren’t willing to dig deeper into things because they already think they know it, because they have seen a little 5-second clip someplace. And I think that is a hindrance to actually learning.

Students are more diverse than ever, and they all have different needs and expectations. Mark indicated that students want constant entertainment and visual stimulation. He said that this, along with accommodating different learner needs in such a diverse student body, makes teaching challenging:

The main drawback is that students now expect—they expect to be entertained. They have a very difficult time sitting through a normal class period. They want it to be fun, lots of fun videos shown. Hey, I mean, they’re so used to just sitting on their cell phone now, accessing videos, that they want constant visual stimulation. And just talking about something isn’t good enough. And I’m not sure if that is all good. I know some people would probably say that having the video examples really supports what you’re saying, and I understand that a lot of people are visual learners, but at the same time, one of my goals is to get them to think.

At another interview, Mark went on to say,

Teaching is something that I don’t honestly get a whole lot of joy from, either because the students don’t learn quickly or don’t care, or in some cases already know the stuff when they walk in. Or they might know more than I do. And that is what is hard. It is very challenging to have a classroom full of people that range from two or three who really know more than I do about any of the current stuff to people who don’t care, to people who might want to care but they can’t learn it, no matter how hard you try to teach them. So it is very challenging. It used to be much simpler.

Technology has helped, because they seem to know more when they walk in the classroom, but it has hurt in that they expect everything to be spoon-fed to them
and they don’t have to think in the process. They have kinda checked out when it comes to the thinking process, and that is a concern.

I’ve taught for 28 years, and I’ve seen a shift in the classroom away from the responsible student who wants to try to work hard to, you know, that used to be the majority of the students, to now it has shifted to the lazy, sit back, you know, I don’t have to turn things in on time, I don’t really care, uh, I just want my degree. There are still some good students out there, but it went from, I think, the majority to the minority, and I think there is many reasons for that. But I don’t know that I blame technology for that as much as how the educational system has tried to treat students like customers, as opposed to the old-fashioned way, my way, which is essentially that I have something to share with them and they should be thankful that they have an opportunity to learn from me, and instead of being consumers, they are actually being granted a privilege to come and sit in the classroom. They think it is a right, and I see it as a privilege.

Mark has taught in higher education for over a quarter century and noted that students have changed over the years. He stated that part of the problem is the educational system and the way it has changed its business practices over the years, arguing that education should be a privilege, not a right.

Summary

There are many benefits and barriers to using technology in the classroom. Course management systems and server space allow faculty to house class content online so students can access materials at any time of day or night. Faculty and students save time and have added convenience because the class materials are available that way, and communication is a breeze. It provides the professor and the class with a vehicle to view and edit class material all at once or individually. Technology also adds variety by enabling faculty to show a video, start an online discussion topic, or walk the students through an online exhibition.

However, there are also barriers that discourage faculty from using technology in the classroom. The biggest barrier is when technology does not work. Faculty spend extra time preparing technology for class and do not enjoy looking bad when they go to use it and it will
not work. Faculty members also get frustrated when technology is not maintained on campus. If they are expected to use it, then it needs regular upkeep and maintenance. An additional barrier is keeping the faculty and the institution current with technology. If faculty and the institution are not up to date, it limits the opportunities and offerings for both faculty and students.

The final barrier that the participants agreed on was the effect of technology on millennial students. Students want to be entertained because they grew up being fed information visually. While they have more surface knowledge, they sometimes lack critical thinking skills. Because of this, they think they are more knowledgeable than they actually are. They like to multitask but have a low attention span, so nothing gets much attention in the end. Finally, they spend a lot of time on the computer and the Internet, but they are not necessarily using technology in educational ways, so this can create mental laziness.

**Support**

The need for technology support was a theme that was mentioned by all participants. They expressed a desire for a dedicated technology support person who is patient and is good at teaching. They also expressed a need for a support person to help alleviate problems, troubleshoot, research new technologies, and conduct training. Helen, Quincy, and Diana were excited by the possibility of working with undergraduate students who are good with technology. All of the participants noted that one-on-one or small-group training works best for them. Both Diana and Helen agreed that a culture of faculty helping each other with technology is needed on campus.
Dedicated Technology Support Person

Helen expressed a need for more support and concern that there is no designated IT person whom she can call for assistance when things go wrong. This causes additional stress and anxiety for Helen and impacts her daily decision making about whether or not she will use technology in the classroom. When Helen was asked about the role technology plays in her life, she replied,

Whether it is personal or professional, for me to keep that going, I need, I need a strong support system to help me. Just like today, I’m going to do a DVD and I haven’t used a DVD in that room. So, I’m going to go over early before class and try it. So, if it doesn’t work, then what am I going to do? I’m gonna have to go to Plan B, which is not going to be in the best interest of the student. So, something, you know, if I’ve got a question on how to, you know, get it going, there is no one there to ask.

So, I have to wait until the next—you know, there is no one right then I can call that can come. And so I feel like I have no support. I mean, I do, but I don’t right there and then. Um, and so I could lose time, and I do look silly. Yes, I mean . . . and that is my biggest deal, I don’t want to look silly. And so, that is why, um, sometimes I will not use certain things if I don’t feel 100% comfortable, because I don’t want to look silly. And changing from room to room, and every room is different, and the thing is . . . and keeping up with it is taxing for me. I’m selling my soul. [Laughs]

But I feel like there is so much more, and I feel like I need more one on one, just like specific things. Like applications, like, “How do I do this?” And I feel like I’m not bothering, but I know that they’ve got a full plate, and I feel like it is kind of a really small little question.

Helen also feels that her age is a factor in learning technology:

And the other thing, you know, that I mentioned, for me, is I’m old enough that it’s—it’s something I’ve had to really learn. I don’t know if I’ve learned it, but I’m learning it. [Laughs] And so, you know, I just have to do it. Pull in TED, pull in YouTube off of Ted, and all that. And you know, that is a little bit out of my comfort zone.

Mark, Quincy, and Diana would also like someone who is on call to help them in the classroom with technology in times of need. Diana mentioned that it would be nice if the students could have access to a technology support person around the clock:
I would like to see more staff dedicated to helping alleviate problems, troubleshoot, support faculty, and be available on the spot. We should have a faculty staff help desk, where there is a staff person on all day that is willing to take an instant call to show up and help.

So, if I had a student who could come help me, it would be better. And, you know, Candy has been kind of the—I’ll geek out with her about stuff, but it is not part of her job to necessarily do that. And so if somebody had that dedicated position where they were able to . . . yeah, we do need a couple of, like, EMTs basically. It would be very—and you know, Kevin [IT staff] does it when he can, but again, that is not necessarily his job is to come in and replace a motherboard in the middle of English.

I’m learning who to go to, and I think we need a go-to list along with, um, an ER—a person that’s on duty all the time, even in the middle of the night. They need to have someone that these students can call when they’re up at 2 in the morning working on a paper and something goes wrong.

**Technology Trainer Who Can Teach**

Diana expressed a need for a technology person who is nonthreatening and patient.

She pointed out that just because a person is good with technology does not necessarily mean he/she will be a good teacher of technology. She was honest about her fears and emotions when learning technology:

When I first got into using technology, it was the fear factor. Currently, with technology, what I am finding is every day I learn some new little tidbit, and it can be really simple. I am gonna be real honest with you because you are not a threatening person.

So, finding someone else that has done it, and someone that will be patient and safe. Seriously, just like with a lot of our insecurities, we have to be safe. You ought to write a book on safe technology.

Probably, if I had it more organized, you know, and that’s what I need to do. Like right now I’ve got some things that I automatically go to on YouTube that I know are great examples. So, like the first week of school, I know that those are easy to find and I can get to them and so on. Um, so probably just again, practice and knowing where I’m going to use it.

And I think along with it is I started to find the tech people that have a good attitude and are patient. Because I think that is something that is really interesting, all the way from students to people that run the show, is there are people that . . . I got to thinking, some of us can speak Spanish, and some of us can teach people how to speak Spanish. And I think that’s real true in the tech world. Some are real tech gurus, but they don’t know how to explain to someone how to use it. But they’re expected to know how. So, in all fairness, not all of us are born teachers.
Quincy was hopeful for a technology trainer who shows faculty not only how to use the technology but also how to apply it to pedagogical practices in the classroom:

Someone to say, “Here is something you might want to check out, because the things that you like to do, it may help you do it.” And you know, and that is . . . or even just with a pedagogical purpose to it, you know . . .

Yeah, the resources and then the encouragement to use them. I mean, it’s one thing to say that we’ve got all this stuff. But then we need, “Here’s how you can use it, and we’re going to have people that can show you how to use it the way you want to use it.”

Mark has had similar experiences when it comes to technology training:

Because they go so fast, I don’t think they are very good teachers. I think they know a lot about the system, but I don’t think they understand how to teach it properly. And I find that true of tech people in general. Tech people don’t know how to explain it to novices. So, that is why I have bent over backwards trying to simplify the teaching of technology and to try to help the students through it. It is hard. Because what I might think is simple, they might not think is simple. So, it has been beneficial in that way to open up my eyes and see how technology needs to be taught.

**Individual or Small-Group Training**

All six of the participants stated that they prefer small-group or one-on-one training when it comes to technology. Participants also felt that the training needs to improve teaching and learning practices or classroom management and must be something useful and relevant to the job they do. Diana, Quincy, and Helen all made statements regarding past successful training experiences using smaller groups of people:

I do much better going to the workshops where I know there is only going to be a few people. In fact, the last one that I went to was SMART Board, and there were three of us. And it was great, because there was less intimidation, and even though some of those people knew up front, it was just really cool. So, you really do need just small groups for tech training, even one on one, you know. (Diana)

I like to see it when things are modeled for me and I see them work successfully. Then I start to—I’m able to generate ideas. The way that I learn, in a lot of senses, especially technology, is if I see it done, and I see the result of something, that is what
sparks the ideas in me. Oh, I can do something like this, but I would do it this way, you know. (Quincy)

You know, one-on-one or a small group. The big group really doesn’t do much for me. I don’t ask, because it slows everything down. And I am a hands-on—I mean, give me a manual, forget it. I mean, I know that is not good. That’s just my learning; you know, I go to training and then if I don’t use it . . . It is just like anything else, you have got to keep at it. (Helen)

Diana stated that she would like to know about technology that students currently use. What types of technology are available and how are students using it in their daily lives? She would also like additional time to learn about technology in the summer in a less stressful type of situation:

How can I tap into my students—what they have—like their iPods? What are the capabilities of iPods? iPhones? iPads? Knowing all my instruments; who has what and what they can do with it. I have no clue. I know bits and pieces, but it is all running around.

I would love to see—um, and I think it’s possibly gonna become a reality—a lot more time where we actually have lab time, like in the spring, in May when we meet for our staff and faculty summer session. I would love to see an actual time where faculty are encouraged to do something with technology and not in a stressful manner, you know.

Student IT Experts

Both Quincy and Helen thought that collaborating with a staff member or student to aid in technology training and issues would be a benefit. There are times when a professor needs assistance setting up technology with students, and having an aid or helper in the classroom would greatly reduce questions, problems, and headaches.

I would probably need someone to kind of be my wingman for IT, just helping the students get through the learning curve of it. You know, you create an account, you design . . . You know, it is just a matter of learning how to use O’Mecca, just as any website is going to have its own set of quirks. I would probably need collaboration from Shelly the Archivist. (Quincy)

Just when you get started, the questions invariably come up, and just to have someone else help answer those questions and navigate student difficulties. (Helen)
When Helen was asked, “So you wouldn’t be opposed to upper-class students working with you to help train you to use technology in different ways?” she exclaimed,

Aw, that would be awesome. I’d have them in my office every week!

Well, I think I did mention I have used Matt Johnson, who was a student here and went on and got his master’s. I use him, because if he is around, you know, there will be something I don’t know how to do, and he’ll help me. I’ve asked him if he’d be willing, I’d hire him to help me with technology.

I think there needs to be a culture of helping each other out. Because right now, I feel kind of silly asking people like I don’t know. And so if there was a culture, and we were going to get everybody up to speed without having this dichotomy of people using overhead projectors all the time . . . And so we are going to help each other out, create a support system to help you, we are going to have ongoing trainings. That is going to be our culture. That is what I think we need.

Helen went on to add,

First step is to have a training session, and then it has got to trickle down to everyday questions, everyday support.

**Technology Maintenance Issues**

All of the participants felt that maintenance to technology was lacking at Midwestern University. Live help is available behind locked doors, but it takes a phone call or an e-mail, and it is most likely not going to be immediate. However, most felt that the IT department was doing its best to support faculty and that they are friendly and timely in their efforts. Participants also did not necessarily blame IT but wished regular upkeep was scheduled and not just upgrades.

John sometimes will not risk looking bad by using technology, because he never knows if it is going to work or not. He said it reflects poorly on him and the institution he works for:

Having it work consistently. Never knowing if it is going be up or down makes me not want to put all my eggs into one basket. If all these smart classrooms around here—having the smart classrooms is way cool, but every week, or at least once a
month, somebody ought to be going around and making sure everything is up and running.

On the SMART Boards, you can touch it and move things around with your finger on the board. One of them was so out of calibration, the pointer on the SMART Board was like six inches away from your finger. And it just messed up everything. And so having it is one thing, but if it’s not tuned and always working at its peak, I’m not gonna use it. It looks bad.

Helen worries about backing up her files and how much digital storage space she has on the server. She reported being unsure how to archive her files and not knowing how to figure out how much storage space she actually has. Faculty need to have enough training so that they understand where they are storing their files and how to calculate storage capacity. Midwestern does a daily backup of all the files saved on the server. However, many faculty have laptops and/or store their files on flash drives, external drives, and the desktop computer in the classrooms they use. Helen explained her frustration:

Like my thing’s full, I’m always—the storage piece. I’m not sure how to archive all that or whatever. And so, and plus I don’t know if I would want to. But anyway, he [student helper] was just saying how much space was one there, and he goes, “Is that really how much space is on there?” And I’m like, “I don’t know.” And he says I was at max the second day I was here.

There is no support or updating. And there are so many things computer-wise that I don’t know how to do. So, those small things that are big things.

Quincy would be grateful for more bandwidth on campus, especially in the dorms:

If only we had more server space and if we had more bandwidth for students in the dorms. Like I use the Films on Demand portal that the library has now, which is just fantastic, but getting stuff to load in the dorms, because everybody is trying to do YouTube, and they have no bandwidth whatsoever. And so if I want them to watch, you know, like a 45-minute video for class, you know, they have to go to the library or something to do it. It’s impossible. So that would be useful.

Sometimes technology not working has nothing to do with the physical space or the equipment. Amy said that she and the nursing students use Evolve Testing Center that has
case studies for students online. Sometimes the system goes down, and if one person cannot
get on, they have to wait so that no one is left out.

One thing we use a lot of in the division is this Evolve Testing Center, and we have
all these case studies online, and all these tests online that they have to pass. And
they are great case studies; they go through all different kinds of patient scenarios.
But when that system doesn’t work, it is really frustrating, because you have to e-mail
them—they call it making a ticket. You have to make a ticket. And it might take
them 12 hours before they get back to you, or 24; it kind of depends on how busy
they are. So, if you have an issue with just one student who can’t get on, or they can’t
get their score up, or whatever, then it might take forever. You know, it is just . . .
and I hate that. Or, you call them, and sometimes when you call them you get
somebody right away, and sometimes it takes forever. You know how it is.

Something else Diana brought up is that faculty can never control who uses the
classroom and the technology before them:

And you can’t control who has been in the classroom before you. I think people are
starting to get it more . . . you know, log off, those kinds of things, and even turning
on and off the projectors and equipment usage. You know, I think sometimes we just
forget to be considerate. I mean, I’ve done it too. You get sidetracked.

**Datatel—Technology Related to Student Services**

Datatel is the name of the campus technology that supports and houses the student
database. Faculty have access to the features of Datatel through the WebMail portal on the
campus website. Current students, staff, and faculty of Midwestern access the portal by
using their username and password. Datatel has registration, advising, grades, class rosters,
and class communication features. While Datatel has improved in its functionality over the
years, there is still much work that needs to be done. Datatel is eco-friendly because it
reduces paper costs for the university, but it is now more of a burden on faculty, because
faculty have added work on paper and within the system to get students registered. Datatel is
also expensive, because it requires computer programmers to maintain it and improve its
features. Midwestern has two programmers whose main jobs are programming and maintaining the Datatel system.

John feels there are still many bugs within Datatel that need to be worked out:

When it actually comes to registering, again, there are always glitches. You know, if they [students] don’t have a prerequisite, it kicks out the course so they can’t register for it. If you don’t put M1 for the one class they are doing at night, then you have to register separately because it won’t even find the class. I don’t know why they can’t just put all fall classes together and all spring together. It would make it easier. And if they have holds, of course you can’t do it. So, every semester I still register some students by paper, just because electronically it doesn’t know the reality of the students’ current situation.

Amy agreed with John that there are still some bugs that need to be worked out, but overall she is happier since Datatel has been implemented on campus:

Datatel? Yes, absolutely, all the time. Yes, I use the program evaluation feature, the registration. . . . I get frustrated with parts of it. You know, if somebody has a hold or if they transfer in one with the pre-reqs, then it is kooky. I had to have Janet [registrar’s secretary] actually register somebody over the phone because I couldn’t do it from my desk. It was a glitch in the system, the Datatel system. Oh, I hate this . . . you know, I love it when it works. I mean, compared to always doing paper registrations, it is just lovely. I really like the program evaluation feature, you know, so that I can know exactly what they need, what has transferred, all their classes, and all that other stuff.

Summary

Support was a theme that resonated from all the participants’ voices. Faculty felt they and the institution would greatly benefit from a dedicated technology support person. This person could also help faculty with research, train them on technology, troubleshoot, and be available for questions or help whenever needed. His/her specific job would be to find ways for faculty to incorporate technology into all disciplines and classroom practices. Faculty voiced a need for a trainer who is patient and good at teaching. They also expressed that they prefer training to be one on one or in small groups.
Additionally, scheduled maintenance on computers, projectors, labs, and any multimedia equipment is necessary. If maintenance conditions were improved, faculty would feel more confident when they go to use technology and would probably use it more often.

The introduction of Datatel at Midwestern has improved advising and registering students, but there are still glitches within the system and features that could be improved. While this is a frustration for faculty, it is still better than when everything was done on paper and by foot. Overall, more support could eliminate many of the barriers that faculty feel hold them back from using technology while they are teaching.

**Summary Based on the Research Questions**

A research question must be identified to guide the researcher to what he or she wants to know more about (Jones, Torres, & Arminio, 2006). Answering research questions is an indicator of a good qualitative study. The following are summaries of the answers to the two research questions in this study.

**Research Question 1**

_How do faculty members make meaning out of the complex relationship of the three knowledge bases: content, technology, and pedagogy?_

Participants admitted to and were aware of the fact that technology plays a big part in their lives, even more so in their personal lives. While they either did not use computers in college or were just getting them, they have grown accustomed to using them through their careers in teaching. Amy, Diana, Helen, and Quincy would like either additional training or someone to research new ways to use technology and different digital tools in their content
areas. All of the participants felt they were in need of a support structure to help train them on using technology and keep them current.

What the participants were passionate about was their discipline, which relates to the content they teach. They all are experts in their field and have the education and experience to back their credentials. They are all respected faculty and well liked by their students and countless alumni. They are model citizens and pillars of the Midwestern campus. They have used their expertise on committees and outside initiatives many different times and continue to do so. They believe in being the best in their field and work hard to stay current and abreast of new knowledge in their content area. Content for them is what they know best.

The participants all know and teach their content well. They are knowledgeable about pedagogy and their content areas because of their prior education, new knowledge, and the skills they have acquired teaching over the years. Content has always been a big part of what they do, so it usually is not thought of out of the context of teaching.

The participants would benefit from a technology expert who can brainstorm with them and help them discover ways to incorporate technology within their discipline. They would benefit from extra time for one-on-one questions and answers with a caring technology professional. They would benefit from regular maintenance being performed on campus technology. They would benefit from being shown how technology is being used in the business sector and at other universities. They also would benefit from development time in the summer that is allotted to technology training.

Research Question 2

How do faculty members make meaning of how students use technology for educational and daily use?
All of the participants have seen the characteristics of students change over the years. With the rise of the digital age came the increase of technology use in personal lives, especially those of the millennial students. As they entered college, so did their gadgets, and higher education and its faculty have been scrambling trying to figure out how education can tap into their brains via their technology devices. While students seem to know much about the world, they lack critical thinking skills and patience. They know all about social networking and collaborating, but they do not think about how technology could be applied to better their education and make their lives easier. Other than e-mailing their professors and submitting assignments, students’ computer and Internet activity usually consists of completing assignments, e-mailing, instant messaging, posting on social networks, and shopping.

Summary

Faculty could be motivated to increase technology use within the classroom if they were given additional training and support. To accommodate this growing need, universities need to know what meaning the six participants’ made from their past and present experiences using technology. This study strived to determine how faculty decide on and make meaning out of their technology use within the classroom. The researcher questioned the views of the participants to glean how they described the meaning they make of their combined use of content, pedagogy, and technology in their classes. Information found could provide universities with information to better accommodate the technology needs of their faculty.
CHAPTER 5

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this qualitative, phenomenological study was to make meaning of the experiences of six faculty members at Midwestern University and how they make sense of the combined use of technology, pedagogy, and content within the classroom. The following themes that emerged from this study:

- Technology and pedagogy are inseparable;
- Pedagogy and technology;
- Benefits and barriers of using technology; and
- Support.

Understanding faculty motivations and barriers faculty experience when using technology will help inform decision making for administrators of faculty development training related to technology and pedagogy. The guiding framework for this study was Technological Pedagogical Content Knowledge (TPACK; Mishra & Koehler, 2006). Data were collected through semistructured interviews of six participants over a 4-month period utilizing Seidman’s (2006) three-step model. Secondary data were gleaned from document analysis, content analysis of Blackboard course sites, e-mails, and Facebook.

This chapter includes discussion based on the theories, conclusions, contribution to literature, recommendations for practice, recommendations for future research, and reflections.
Discussion Based on Theories

Self-Determination Theory (SDT)

Instead of asking, “How can I motivate people?” people need to be asking, “How can I create conditions within which people will motivate themselves?” When it comes to motivation, there is a gap between what science knows and what business does. In Pink’s (2009) book, *Drive: The Surprising Truth About What Motivates Us*, he referred to three different operating systems or sets of assumptions and protocols about how the world works. Motivation 1.0 is the first operating system, and it presumes that humans are biological creatures struggling for survival. Motivation 2.0 presumes that humans respond to rewards and punishments in their environment. Motivation 3.0, the upgrade he said is needed now, presumes that humans have a third drive—to learn, to create, and to better the world.

In the 1940s, a professor of psychology at the University of Wisconsin, Harry Harlow, established one of the first laboratories for studying primate behavior. Harlow and two colleagues gathered eight rhesus monkeys for a 2-week experiment about learning. What Harlow found was that the first drive involved biological motivations that came from within; the second drive came from without—the rewards and punishments that the environment delivers for behaving in certain ways. Harlow had a theory that amounted to a third drive, where the performance of a task provided intrinsic reward. The joy of doing the task was the reward. Harlow eventually called it *intrinsic motivation* (Pink, 2009).

Humans have a biological drive that includes hunger, thirst, and sex. There is also another long-recognized drive: to respond to rewards and punishments. In the mid-20th century, a few scientists began discovering that there is another drive—what some call
intrinsic motivation. For decades, several scientists have started figuring out the dynamics to explain the third drive (Pink, 2009).

Societies have operating systems like computers, a set of invisible instructions, mostly instructions and protocols on which everything runs. Pink (2009) called the first human operating system Motivation 1.0, which is all about survival. Motivation 2.0, its successor, is built around rewards and punishments. That was fine for routine 20th-century tasks. Currently, Motivation 2.0 is incompatible with how people organize what they do, how they think about what they do, and how they do what they do. It is time for an upgrade.

The current operating system we live in, Motivation 2.0, which is built around external carrot-and-stick motivators, usually does not work and often causes harm. At the heart of Motivation 2.0 are two elegant and simple ideas: rewarding an activity will promote more of it and punishing an activity will promote less of it. This is usually true, but when rewards and punishments encounter the third drive, strange things begin to happen. As long as a person is treated fairly on the job and his or her “baseline rewards”—salary, contract payments, some benefits, and a few perks—are met, the carrot-and-stick approach would actually have a negative effect. Also, instead of restraining negative behavior, rewards and punishments can often set it loose and give rise to cheating, addiction, and myopic thinking (Pink, 2009).

The old carrot-and-stick approach does not work anymore. Traditional “if-then” rewards give supervisors less of what they want. They extinguish intrinsic motivation, diminish performance, crush creativity, and crowd out good behavior. They also cause more of what supervisors do not want: They encourage unethical behavior, create addictions, and foster short-term thinking. There are bugs in the current operating system (Pink, 2009).
Motivation 3.0 has three essential elements: (a) autonomy—the desire to direct one’s own life, (b) mastery—the urge to get better and better at something that matters, and (c) purpose—the yearning to do what one does in service of something larger than oneself (Pink, 2009).

Quincy’s comments illustrate how he exhibits all three motivational characteristics:

I mean, now it’s at a point, you know, where I really enjoy staying current, finding out about stuff, new toys. You know, I’m willing to try anything to see if it works. I always have to be very cautious that—because, you know, I get excited about stuff. So it is like, “Am I incorporating something just to incorporate it? Or am I doing it because there is a real purpose to it?” But if I try something and it lets me do what I want to do, and it lets me add to that significant learning experience that I want my classes to be, then yes, I’m willing to incorporate it further if it works. And so, are there ways that I can do that, that I don’t know about? Yes. So yeah, so if I’m able to find out about it and try it, I’ll try anything once.

Quincy’s sense of self-direction and motivation to become a better teacher were evident when he spoke of staying current, whether it is related to technology or his discipline. He also mentioned that if he finds technology or a tool that will better the learning experience for his students, he will try it. Finally, he said he is always cautious and thinks about how and why he is using technology in the classroom. He is careful not to use technology for technology’s sake. Quincy is autonomous and strives to be a master teacher. He is also very purposeful about decision making regarding how he uses technology to aid in teaching class content.

Diana made similar comments when she was asked about where she saw herself going in the future:

One of the things I see as a pattern in my life is once I’ve mastered something, I want to learn something new. So, when I first wanted to teach Spanish on the high school level, that was a new thing. Once I mastered it, I was ready to move on into the college level. What I gained by teaching college level was travel experience and
community—doing projects out in the community. Umm, I find that I am very well connected with the community, more than a lot of my peers.

Diana is intrinsically motivated to learn and master new things. She thrives on knowledge and seeks different types of learning opportunities continuously. She also feels pride and purpose because of her connections within the community.

When Amy was asked how she could be motivated to use technology more in the classroom, she responded,

Probably if I had to use technology more. You know, if somebody could show me something new that I don’t already use, that would be helpful to me. I’d probably use it. Just knowing about some of the stuff.

Amy is excited and motivated to learn new technology but lacks the time to research the possibilities. She reiterated what Quincy and Diana said about wanting to find technology that is helpful to her in either her teaching practices or classroom support.

Helen made similar statements to the other three participants:

And one thing that just popped up real quick for me—you know, I was in Boston at a conference. It is crazy; I mean, I just love going to conferences, and it was one of these kind of quick trips and back—is that, when I kinda think about it related to technology is that it is really a desire of mine and a love of mine or, I don’t know, to—I love learning new things. I’m just a lifelong learner. Some things I don’t care about, some things I do. So, the things that I care about, I just, like, I can’t get enough. I enjoy it; it is so stimulating for me to learn about that, and so I want to then be able to share that, teach that, and just dialogue about it. Technology, so that is where technology is. Although it is not necessarily a passion for me, it is a strong desire that I’m as current as I can be.

All six of the participants are autonomous, seek mastery in their discipline, and feel a higher sense of purpose in their lives because of teaching.

Interestingly, as far as students, neither baby boomers nor millennials rate money as the most important form of compensation (Pink, 2009). The two bookend generations are willing to accept a radically “re-mixed” set of rewards. They choose from a range of
nonmonetary factors, from a “great team” to “the ability to give back to society through work” (Pink, 2009, p. 135). If they do not find a satisfying package of rewards in their organization, they’ll create their own venture (Pink, 2009).

The Motivation 3.0 system fosters what Pink (2009) called Type X and Type I behavior. Type I is fueled by more intrinsic desires than extrinsic. It is less concerned with the external rewards and more with the inherent satisfaction of the activity itself. “Type I behavior is made, not born” (Pink, 2009, p. 78). Type I behavior is a renewable resource. Think of it as the motivational equivalent of clean energy: inexpensive, safe to use, and endlessly renewable. Type I behavior also promotes greater physical and mental well-being. Additionally, people with Type I behavior are self-directed and devoted to becoming better and better at something that matters. Type I people connect their quest for excellence to a larger purpose (Pink, 2009).

With that being said, there is a choice regarding motivation. One can listen to the research and craft a new operating system to help him/herself, his/her business, and the world, or one can stick with the view that human motivation is grounded in old habits. Changing such actions is not easy though, and it does not happen overnight.

**TPACK**

One must learn by doing the thing, for though you think you know it, you have no certainty until you try. (Sophocles, 400 BC)

TPACK is the basis for good teaching with technology. It requires an understanding of three knowledge bases: content, pedagogy, and technology. The following elements are important in the TPACK framework: content knowledge, pedagogical knowledge,
technology knowledge, technological content knowledge, technological pedagogical knowledge, and technological pedagogical content knowledge.

Content knowledge is knowledge about the general subject matter that is to be taught or learned. Teachers must know the subject they teach, which includes knowledge of central facts, concepts, theories, and procedures within a given field. Teachers must also have an understanding of the nature of knowledge and how it relates to different fields.

Pedagogical knowledge is deep knowledge about the processes and practices or methods of teaching and learning, and how they encompass overall educational purposes, values, and aims. This form of knowledge is in all issues of student learning, classroom management, lesson plan development, and implementation. A faculty member with deep pedagogical knowledge understands how students learn, acquire skills, develop habits of mind, and develop positive dispositions toward learning.

Technology knowledge is knowledge about standard technologies such as books, chalk, and overheads, all the way to advanced technologies including but not limited to the Internet and digital video. This includes not only knowing how to use operating systems and hardware but also how to use software, browsers, and e-mail. In addition, faculty have knowledge of how to install and remove peripheral devices and software programs, and create and archive digital documents. The nature of technology knowledge will shift with time as technology changes. However, the ability to adapt to new technologies will still be important.

Technological content knowledge is knowledge about the manner in which technology and content are related. Teachers need to know not only the subject matter that
they teach but also how technology can be used to better explain or understand the subject matter.

Technological pedagogical knowledge is knowledge of the existence, capabilities, and components of different technologies and how they are used in educational settings. It also pertains to knowing how teaching might change as the result of using technology.

Technological pedagogical content knowledge is an emergent form of knowledge that incorporates all three components (content, pedagogy, and technology). This model of integrating technology in teaching and learning argues that developing good content requires thoughtful interweaving of all three sources of knowledge: technology, pedagogy, and content. The core of this argument is that there is no single technological solution that applies for every teacher, every course, or every view of teaching. Separating the three components is an analytic act and one that is hard to do. In reality, these components exist in a state of dynamic equilibrium. In the TPACK model, it is the technology that drives the decision making regarding content and pedagogy in the classroom.

Traditional forms of faculty development or teacher professional development focus on workshops and standalone technology courses. These types of training tend to view technology as self-contained and emphasize a divide between how and where skills are learned and where they are to be applied. These types of training are ill-suited to produce the deep understanding that teachers need to become intelligent users of technology in pedagogy.

Training teachers on specific software makes teacher knowledge too specific, and it quickly becomes outdated. Technology changes so quickly that attempts to keep teachers’ technology knowledge up to date are doomed if technology training is too specific. Most software is designed for those who work in the world of business and work, not education.
Converting these tools for classroom use is neither trivial nor easy. It requires teachers to figure out the affordances and constraints of technologies in order to creatively repurpose these technologies to meet pedagogical goals of specific subject matter.

Mishra and Koehler (2006) emphasized a learning-technology-by-design approach. This approach places the emphasis on learning by doing and less on lecturing and traditional teaching methods. Faculty learn about design by becoming actual practitioners, not just practicing. Learners work in collaborative groups to engage in practices of inquiry, research, and design. The actual process of design is the anchor around which the rest of the class and learning occurs. The evolving artifact is the test of viability of individual and group understandings, conceptions, and ideas. The main role of the instructor is that of facilitator and problem-solving expert, rather than that of an expert in the content.

Mishra and Koehler (2006) gave three good examples drawn from three different master’s-level courses in an educational technology master’s program that used the learning-technology-by-design approach. One example was a master’s-level capstone course in educational technology and educational psychology. Teachers worked in groups with master’s students using self-chosen topics to create iVideos (idea-based videos) to communicate an important educational idea. Another example was a master’s-level course that dealt with technical, pedagogical, and social issues around the design and educational uses of web-based technologies. A third example included six tenured faculty members who became “students” and worked in groups with four master’s students to design an online class that was to be taught by one of the collaborating professors the next year. All three are examples of faculty collaborating with students to learn how to use technological solutions for pedagogical practices and creating classroom content.
The learning-technology-by-design approach is the perfect solution to training faculty in how to use technology in the classroom and also to incorporate it into real-world practices of their own by developing class content with their students. Participating in the process of developing a course from scratch provided the participants in Mishra and Koehler’s (2006) study an opportunity to apply their knowledge of educational theory in a real-world context in addition to furthering their own development.

In the Findings section of this research, regarding support, faculty unanimously favored one-on-one and small-group training as opposed to large-group training. The learning-technology-by-design approach would be perfect for these participants and would be a win-win for the students, the faculty, and the institution (Mishra & Koehler, 2006).

**Diffusion of Innovation**

The rate of adoption is the relative speed that it takes an innovation to be adopted by the members of a social system. It is usually measured by the number of individuals who adopt an idea in a specified period, such as each year. The rate of adoption is measured by a numerical indicator of the steepness of the adoption curve for the innovation (Rogers, 2010).

As mentioned in the literature review, there are five perceived attributes of an innovation: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2010). According to Rogers (2010),

In addition to these five perceived variables are (1) the type of innovation-decision, (2) the nature of communication channels diffusing the innovation at various stages in the innovation-decision process, (3) the nature of the social system in which the innovation is diffusing, and (4) the extent of change agents’ promotion efforts in diffusing the innovation affect an innovation’s rate of adoption. (p. 179)

The innovation-decision process is the process through which an individual passes “(1) from first knowledge of an innovation, (2) to forming an attitude toward the innovation,
(3) to a decision to adopt or reject, (4) to implementation of the new idea, and (5) to confirmation of this decision” (Rogers, 2010, p. 145). This process is a series of actions that occur over time through which an individual evaluates the new idea and decides whether or not to include the innovation in ongoing practice.

Rogers’ (2010) present model of the innovation-decision process consists of five stages:

1. **Knowledge** occurs when an individual . . . is exposed to an innovation’s existence and gains an understanding of how it functions.
2. **Persuasion** occurs when an individual . . . forms a favorable or unfavorable attitude toward the innovation.
3. **Decision** occurs when an individual . . . engages in activities that lead to a choice to adopt or reject the innovation.
4. **Implementation** occurs when an individual . . . puts an innovation into use.
5. **Confirmation** occurs when an individual . . . seeks reinforcement of an innovation-decision already made, or reverses a previous decision to adopt or reject the innovation if exposed to conflicting messages about the innovation. (p. 145)

According to Rogers (2010), “When someone who is like us tells us of their positive evaluation of a new idea, we are often motivated to adopt it” (p. 150).

**Summary**

Amy was unsure about what the future will bring. But one thing is for sure: technology is not going away; it is only becoming more a part of our daily personal and work lives. Amy stated,

Who knows about the future? Yes, and maybe that is okay. And also I think as far as technology, as far as what we have for practice, we do simulations now with all those mannequins, and you know, those mannequins are only getting more and more sophisticated. They have all sorts of cool stuff now. I think we’ll have more and more of that. Students are very comfortable with technology, that is for sure.

Quincy pointed out faculty obligations to the professorate and the students:
Well, you know, we’re expected as scholars in a discipline to keep current in our field, even if that is, you know, the explicit promotion and tenure criteria suggests that we ought to do that. But you know, I think even informally, but clearly if you want to be a good art teacher you’re current with what is going on in your field. If I want to be a good historian, I am reading new interpretations, I am looking at, yeah . . . I am trying to stay current in my field rather than just regurgitating what I learned in grad school, you know. If you are a teacher, you should be open to the idea of improving your teaching, whether it’s using technology or not. You know, if you want to get better at pedagogy—and it is like any other field, there is good research done on it, there are good studies, you know—get into the literature and see what people are doing. There are so many studies out there. And for someone like me, who uses technology, it is the same thing. I need to be up to date if I want to be effective in using it.

**Conclusions**

The participants in this study have Type I characteristics, which means they possess a high level of intrinsic motivation and are autonomous in nature. They strive to be confident using technology to teach their subject and freely admit they need help in doing so. By understanding what motivates faculty to increase technology use, training professionals can tailor how and what they need to do to provide faculty members with the individual training that best fits their needs.

By combining the TPACK framework, the SDT, and the adopter categories, the researcher created a technology tool to help technology learning specialists identify current and future faculty technology needs (see Appendix). The TPACK Technology Tool should be completed prior to planning any learning-technology-by-design projects with individual faculty.

**Contribution to the Literature**

This study had the unique feature of being conducted at a small private university with no online class offerings, limited IT staff, resources, and technology training. At a different institution, different conclusions may have arisen.
**Recommendations for Practice**

It is recommended that faculty meet with a learning technology specialist to determine their technology experience using the TPACK Technology Tool first. Learning technology specialists then need to select faculty who are in the lone ranger adopter classification to begin the learning-technology-by-design projects so they will better ensure success for adoption across campus by their peers.

Once other faculty see and hear about the success of the learning-technology-by-design classes from other students and colleagues, they will want to adopt the new technological strategies to aid in teaching their subject matter.

The participants in this study were a few of the finest and most respected faculty members at Midwestern University. Given a similar model, the faculty could become technology leaders among their colleagues who collaborate with technology savvy students that teach both the faculty member and each other. Applying for technology grants could help cover costs for future training and incentives to reward faculty with technological tools and gadgets that they could use with their students in the classroom to aid in teaching their subject matter.

**Recommendations for Future Study**

I am personally curious to see the learning-technology-by-design projects in action. It is my hope that I will have an opportunity to work with students and faculty to develop such projects. I have taught software for over a decade and always focused on learning the software just like my counterparts. After researching the topic of technology and learning about the TPACK framework and what motivates people, I am convinced that if applied, these technology theories used together could transform faculty, students, and the campus. I
recommend conducting future studies that duplicate this one at larger universities. Another study could be examining the differences in faculty who teach online courses and those who are strictly face to face.

**Reflections**

One thing that really resonated for me was the uniqueness of each of the participants, both in their teaching styles and in their use of technology. No two faculty members are completely alike. Their needs are different and their skill levels are very different. How they learn best and the rate at which they learn are also very unique from person to person. Which means they each have special needs and desires and faculty development should be tailored to each person.

Studying the impacts of technology in higher education is a fascinating and ever-changing topic for me. Not only does technology play a large part of everyone’s private lives, but it will transform teaching practices if faculty are shown how to best use it. Technology has been around for quite some time now, and it is time for campuses to start maximizing the potential of their faculty and their investment in technology.

Looking back at my research process, I am amazed that everything unfolded so clearly. While the theories I chose originally were unrelated, they all helped to explain and understand faculty and how they make meaning of the combined use of content, pedagogy, and technology. This has been a journey that has taught me how to be a scholar, to teach like a scholar, and how to use technology in scholarly ways, and for that I am ever so thankful and more knowledgeable. I am so excited for the future and what technology holds for all of us.
REFERENCES


