Leadership for Learning Technologies: A Case Study

of the University of Washington

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ABSTRACT

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This qualitative study investigates the institutional support system for the integration and effective use of technology in teaching and learning at the University of Washington (UW) in the US. In particular regards to the UW's recent initiatives for innovative teaching and learning, this research aims to understand how the UW central administrative leadership has created the system of support for the integration and effective use of learning technologies in order to successfully improve teaching and learning practice. Through a series of in-depth interviews with four staffs from the administrative leadership, this study reveals that the leaders shared the clear visions for innovative teaching practice with technologies, provided special supports for faculty learning and rewards, and constantly evaluated the implementation of the support system through various sources. This finding implies (1) the UW administrative leadership believes technology comes after pedagogy; (2) how faculty learning must be at the center of the support

system; (3) the role of rewards in motivating and supporting faculty; (4) the kinds of

collaboration between the leadership, which seem to be helpful in making the support system

effective.

Table of Contents

Chapter 1

Understanding How a Higher Education Institution Integrates Technology

Into Teaching and Learning Practice

Using technology for teaching and learning practice in the 21st century is a fast growing trend in education around the world. Information, communication, and digital technologies are extensively believed to enhance the quality of education by nurturing the innovative culture in teaching and learning. The importance of the integration of digital technology is particularly highlighted in higher education in order to prepare students to successfully compete in the national and global labor markets. National Education Technology Plan (2010, Department of Education, the U.S.) exhorted educators as follows:

> How we need to learn includes using the technology that professionals in various disciplines use. Professionals routinely use the Web and tools, such as wikis, blogs, and digital content for the research, collaboration, and communication demanded in their jobs. They gather data and analyze the data using inquiry and visualization tools. They use graphical and 3D modeling tools for design. For students, using these real-world tools creates learning opportunities that allow them to grapple with real-world problems – opportunities that prepare them to be more productive members of a globally competitive workforce (p. xi).

Many postsecondary institutions and their leaders have made an effort to expand the adoption and integration of digital technology around campuses. Although technology rapidly permeates higher education, there is still resistance or hesitance to the use of technology for teaching practice (Keengwe et al., 2008; Zhao and Cziko, 2001). Despite the increase of investment to supply cutting-edge hardware and software across campus, the resistance to adopting technology still make it a challenge for institutional leaders to fulfill their visions to

implement innovative teaching and learning with technology (Keengwe et al, 2008). In addition, "increased availability of technology in the schools does not necessarily lead to improvement in classroom teaching practices" (as cited in Lowther & Inan, 2010, p. 137), and this finding implies the need for a carefully designed support system for technology integration and effective use. Lowther and Inan (2010) found that "teacher technology integration is a complex process that is influenced by both teacher characteristics and their perception of school environment," and teacher belief was one of the essential factors influencing the use of technology. Likewise, previous research has found that the user acceptance of technology is highly affected by the perception of technology (Liu et al., 2009; Mun & Hwang, 2003).

Even though a number of previous studies have suggested that teacher adoption of learning technology is significantly related to the teacher beliefs about technology, there is still little research in higher education about how institutional leadership plays a role to in changing the faculty's perception of technology as helpful or feasible, thereby promoting the integration of learning technologies in teaching practice. Keengwe et al. (2008) found that institutional support and leadership are the factors affecting faculty willingness to adopt technology in teaching practice and suggested that it is needed for leadership to clearly articulate the mission, vision, and goals of technology initiatives.

However, existing research did not focus on the detailed descriptions about 'how' institutional leadership can influence the faculty's beliefs of learning technologies as well as 'how' leaders can look for the evidence of the influence of their efforts in this regard. In addition, little study has highlighted how institutional leaders' understandings and beliefs about technology are reflected in shaping a system of support to effectively promote the integration of learning technologies in teaching practice. Whether it is implicit or explicit, I hypothesize that

leaders' perception of learning technologies can significantly influence the process and instructional changes as well as faculty's perceptions and decisions of the changes in practice. Therefore, I aim to understand how institutional leaders conceptualize learning technologies and technology integration into instructional practice across campus, how institutional leaders create a support system to make changes in faculty perceptions of technologies and practice of teaching and learning, how institutional leaders measure the changes in faculty beliefs and practice, and how they reflect the measure and faculty feedbacks in devising the further plans.

This study aims to examine the case of the University of Washington (UW) in the US. In the recent years, UW has undertaken the Two Years to Two Decades (2Y2D) initiative to promote innovations in teaching and learning, part of which substantially overlaps with the promotion of integrating learning technologies in teaching and learning practice. In addition, the central leadership of the UW is well disposed to the use of learning technologies and has created technology-friendly teaching and learning resources and environment across campus. For instance, The UW has widely implemented the new learning management system (LMS) called Canvas since 2013 and many faculty members have successfully adopted Canvas LMS in their teaching practice. As a member of the UW community, I have closely observed the process of changes and professional development for technology adoption across campus, which provided me with deeper insight and understanding upon the support system for faculty to integrate learning technologies. For these reasons, the UW is the best site to conduct this case study on effective institutional leadership for learning technologies in higher education.

Trends in Using Technology in Higher Education

One of the main goals of postsecondary institutions is to provide their students with high-

quality learning experiences to acquire competencies that are necessary to achieve in real-world contexts as well as in educational settings. Students in the 21st century need to learn how to use digital technology and communication tools in order to properly function as productive workers and effectively handle real-world problems (The Partnership for 21st Century Skills, 2011; U.S. Department of Education, 2010). Professionals in various disciplines routinely use online communication tools including social network services (SNS) for the research, collaboration, and communication demanded in their jobs (U.S. Department of Education, 2010). Accordingly, the U.S. Department of Education (2010; 2013) urges educational institutions to expand opportunities for educators to have access to technology-based contents, resources, and tools to create engaging, relevant, and personalized learning experiences that would be sustainable in students' daily lives and futures. Consequently, nowadays technology has an important place in the U.S. higher education. Many postsecondary institutions have invested large capital for the acquisition of digital technology to integrate around campus (Keengwe & Anyanwu, 2007).

In addition to the increase of digital technology resources, institutional leaders encourage their faculty members to adopt new approaches with technology in teaching and learning. Keengwe and Anyanwu (2007) found that the faculty integration of computer technology was a significant predictor of the student's perception of computer use to improve their learning. Garrison and Vaughan (2012) support that technology integrated learning can engage students in more collaborative and higher learning experiences. For instance, the Flipped Classroom model has been highlighted as an example of the use of technologies in postsecondary teaching and learning, which has shown positive responses from students and faculty by improving the student engagement in learning process (Berret, 2012; Fulton, 2012; Davies et al., 2013; Enfield, 2013). Flipped Classroom is an instructional approach that provides students with some learning

4

resources to use outside of class by watching a video, listening to podcasts, reading articles, or

contemplating questions that access their prior knowledge and in-class time is used for active

learning strategies (Fulton, 2012; Enfield, 2013). Davies et al. (2013) revealed that the

technology enhanced classroom, where Flipped Classroom was applied, was both effective and

scalable; it better facilitated learning than the simulation-based training, and students found this

approach to be more motivating in that it allowed for greater differentiation of instruction.

Enfield's research (2012) data showed that 73.5% of students in the study reported that they are

more confident in their ability to learn a new technology after taking the course using Flipped

Classroom. This is only one of many teaching and learning technologies now in use or under

consideration in various postsecondary institutions, and different technologies have different

possible effects on teaching practice itself, and possible direct or indirect effects on learning.

But it serves to illustrate the possible benefit of incorporating such approaches into higher

education teaching.

Despite the benefits of using technology for teaching and learning, faculty members still

tend to use the pedagogy that they experienced and observed during the times they went to

school (Sandholtz et al., 1997):

> Teachers enter the profession with deeply held notions about how to conduct
> school – they teach as they were taught. If these beliefs are commonly held
> and help teachers negotiate the uncertainty of work in schools, no wonder
> teachers are reticent to adopt practices that have not stood the rest of time
> (p. 257).

A well established principle in the sociology of teaching, termed the "apprenticeship of

observation", governs the way people become teachers, even when they have formal training for

this kind of professional work, their many years of experiencing teaching (from the receiving

end) exert a powerful influence on their approaches to teaching once they take responsibility for a classroom (Lortie, 1975).

Some research findings indicate an existing gap between college students and faculty members in using technologies (as cited in Kyei-Blankson et al., 2009). Faculty themselves often have little personal experiences of learning with technology as students and are not familiar with enough strategies to confidently and effectively use technology in teaching (Keengwe et al., 2008). Although university professors are experts in their fields, they do not necessarily have to be experts in teaching, because most professors are not originally trained to become teachers. Sometimes professors simply do not perceive the benefits or the needs of using technologies in practice. This variation in personal experiences and characteristics can be a barrier for institutional leaders to integrate learning technologies in teaching practice.
Besides faculty characteristics, there are other external challenges in promoting faculty adoption of technologies, even though faculty members well acknowledge the potential benefits of using them. These challenges can be technical issues, timeframes, new teaching approaches and strategies, teaching assistants, resources, or etc., even though they acknowledge the benefits.

For these reasons, faculty members have to be provided with proper supports and resources from their institutions to understand how technology can be useful in teaching and learning (Keengwe et al., 2008) and overcome the barriers for the experimental practice to develop instructional innovations with technology. Institutional leadership should help faculty members with mapping out proper ways to integrate learning technologies, including how to design and use effective instructional approaches in practice and how to choose the best tools depending on the goals and contexts of the classes.

The 2y2d Initiative at the UW

The University of Washington (UW) has followed the international trend of implementing technology across the campus, and the institutional leaders have set forth an ambitious plan for innovative teaching and learning in the 21st century. The UW leaders acknowledge that students of today are relatively familiar with digital devices and information technology and often interested in utilizing technology to improve the effectiveness and efficiency of their learning experience in college (UW Provost, 2013). The UW Provost (2013) reported that technology has shaped the way students acquire information, how they process it, how they learn, and how they develop intellectually. In accordance with the promotion of learning technologies for innovative teaching and learning systems, the former UW President Michael Young and other leaders, including chancellors, chief information officers, and technology leaders, discussed the importance of technology accessibility across the UW campuses for students and faculty (http://www.washington.edu/accessibility).

Since June 2009, the office of the UW Provost has implemented and continued the Two Years to Two Decades (2y2d) Initiative under the broader institutional vision of Sustainable Academic Business Plan, which articulates the long-term strategic priorities for the UW in the next 20 years. The 2y2d Initiative has several subordinate plans, including the Teaching and Learning in the 21st Century initiative (Teaching and Learning initiative). The working groups for Teaching and Learning initiative consist of, and collaborate with, faculty across the campuses and the staff from University of Washington Information Technology (UW-IT) and the Center for Teaching & Learning (CTL) (http://www.washington.edu/provost/initiatives/). Under this initiative, UW-IT and collaborators have developed and supported technology tools to promote the adoption of technologies and the effective use of them for teaching and learning.

As such, the working groups conducted pilot projects in fiscal year 2012 to 2013 (FY 2012 – 2013) to examine the effectiveness of technology-based tools that are designed to improve students learning experiences. The pilot-studied technology tools included Tegrity (a cloud-based lecture capture software), Canvas (a learning management system), and eTexts. Since Canvas Learning Management System (LMS) was launched in Fall 2012, the University has been explicitly encouraging the faculty to adopt Canvas LMS in course teaching. The move from the earlier platform of Catalyst to Canvas LMS has been rapidly increasing, and the number of courses that adopted Canvas LMS almost doubled between Fall 2012 and Winter 2013.

Focus of Inquiry and Why it Needs to be Explored

This study seeks to explore how postsecondary institutional leaders understand the faculty use of technologies as technologies are applied to the postsecondary education settings and how they expend the effort to construct an effective support system for the faculty use of technologies. Even though many recent researchers have examined the factors affecting the faculty adoption of learning technologies in higher education, most of these studies have been focused on understanding the perception of faculty, such as their beliefs, teaching efficacy, characteristics, skills, or perceived benefits upon the use of technology. Although these are significant factors directly related to the faculty use of technology, still organizational leadership and the support systems that leaders can create should play a main role to in influencing the factors in order to make changes in the faculty perception. In addition, measuring changes can be difficult for central institutional leadership when trying to promote technology integration, because in postsecondary institutions each college and department generally has its own leadership, exercised by leaders who hold varied notions and views about teaching and learning

as well as learning technologies. However, there is very little research that investigates the structure and type of organizational leadership and the perspectives of leaders around the goals to promote the faculty integration of technologies. As recently many post secondary institutions are setting out their plans to implement learning technologies in instructional practice, this study can be useful to guide institutional leaders in making decisions to produce effective results.

The University of Washington provides a particularly useful case of support for technology integration into postsecondary teaching. The UW has launched the 2y2d initiative and successfully disseminated the use of new web-based learning management system, Canvas LMS, across the campus in the last few years. The top leadership at the UW is publicly supportive with the integration of learning technologies for teaching and learning, using various tools to support the faculty members and advocate the promotion of technologies. It is important to understand what visions the leadership has focused and what tools they have used—such as offering professional development, building infrastructure, awarding grants, and creating learning communities—in order to effectively support the faculty use of technologies. Therefore, by understanding the process of creating a system of support, the perspectives and the role of central leadership in the 2y2d initiative, and the process of measuring the results and feedbacks in the case of the UW, the findings of this study can help other postsecondary leaders to better make decisions in spreading learning technologies into teaching and learning practice across campus and also contribute to future research to create an effective organizational leadership model around learning technologies in higher education.

Research Questions

I would like to investigate how learning technology is conceptualized within the institutional boundary, especially by those in a leadership position. and how technology integration plan creates a viable support system for technology integration, and is implemented across the campus. Investigating these matters leads to understanding how leadership is exercised and distributed in a macro- and micro-level regarding of technology for teaching and learning and who is accountable for the leadership. It will also help to explain why and how using learning technology is related to the institutional visions for innovation, how visions are communicated to institutional members, what the existing problems were and are, and how changes are envisioned. To pursue these matters, it is necessary to examine the current institutional support for technology integration into teaching and learning. Particularly, this study aims to understand the perspectives of the institutional leaders at the UW upon the use of technology for any form of teaching practice.

The main research questions in this study can be restated as follows:

1) How have institutional leaders at the UW understood learning technologies and conceptualized them, to form the vision of 2y2d?

2) What support system have the institutional leaders put into place to encourage the integration of learning technologies into university teaching practice?

3) How have the institutional leaders measured the implementation and effectiveness of their support system, and/or plan to do so, if at all?

Chapter 2

Framing Ideas and Informing Literatures

In this chapter, existing research on technology integration in teaching practice in higher education and institutional support is substantially reviewed. The definition of 'learning technology' with respect to teaching practice in higher education is discussed first to direct the literature review to be focused on the research questions. Then, learning technology integration and teacher perception is described. This flow leads to the discussions of institutional support and professional development for technology integration. Based on this literature review, a conceptual framework is constructed to answer the research questions.

The Definition of Learning Technology

When discussing the use of technology for teaching and learning practice in educational research, the terms used can sometimes cause confusion to researchers as well as practitioners. There are a few different terms that are often used interchangeably in these discussions: educational technology, e-learning, instructional technology, and learning technology. However, literature shows that these terms fundamentally refer to different dimensions of research and practice with respect to technology in education.

Educational Technology

Educational technology is rather a broad concept that comprises the study and practice not only of the design, development, and evaluation of curriculums to improve performance with the use of technological tools in teaching and learning, but also refers to administration,

environments, ethics, psychology, theories, philosophy, and other areas that directly or indirectly influence the use of technology in educational settings and purposes. Educational technology encompasses the following: (1) the actual tools to support teaching, (2) the skills to develop and use the tools effectively; (3) understandings of teaching and learning process; (4) the selection of the right tools; (5) the human support for effective use of the tools; and (6) the organizations that enable the tools to be developed and used appropriately (Bates & Poole, 2003). In other words, educational technology is defined as all the components of an integrated system, which are necessary in order to appropriately use technology tools and equipment for educational purposes (Bates & Poole, 2003). Educational technology is thus viewed as a structure that is larger than *instructional* technology, just as education is larger than instruction (Januszewski & Molenda, 2013). Januszewski and Molenda (2013) put it this way "educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (p. 1).

Instructional Technology

Saettler (2004) uses the following definition of instructional technology: "instructional technology, as the application of our scientific knowledge about human learning to the practical tasks of teaching and learning, . . . is a particular systematic arrangement of teaching and learning events designed to put our knowledge of learning into practice in a predictable, effective manner to attain specific learning objectives" (pp. 5-6). According to Spector, Jonson & Young (2014), instruction is designed to facilitate, support, and guide learning practice with the instructor's direct feedback, inquiry, and exploratory methods. Hence, instructional technology not only refers to teaching and learning technological tools in the classroom, but also includes

the strategies and approaches to effectively using the technological tools. Gagne (2013) defines instructional technology as follows:

> Instructional technology includes practical techniques of instructional delivery that systematically aim for effective learning, whether or not they involve the use of media. It is a basic purpose of the field of instructional technology to promote and aid the application of these know and validated procedures in the design and delivery of instruction (p. 7).

Learning Technology

The "learning technology" concept shifts the ground somewhat from a definition focused solely on instruction. The Association for Learning Technology (2015) defines learning technology as, "the broad range of communication, information and related technologies that can be used to support learning, teaching, and assessment" (https://www.alt.ac.uk/). Different from educational technology and instructional technology, the term 'learning technology' specifically indicates technological resources and tools entailed in teaching. These technological resources include the software—computer programs, information & communication technology (ICT) systems, database, and any other online resources—and the hardware—electronic digital devices and materials such as pictures, videos, audios, TV, projector, computers, robots, 3D printers and etc. Januszewski & Molenda (2013) defined the learning technology resources as follows:

> The pool of resources for learning has expanded with technological innovations and with the development of new understandings regarding how these technological tools might help guide learners . . . Teachers discover new tools and create new resources, learners can collect and locate their own resources, and educational technology specialists add to the growing list of possible resources as well" (p. 11).

E-learning

Although the term educational technology is often used interchangeably used with e-learning, e-learning is better understood as a subset of educational technology. Educational

technology is not restricted to information and communication technology (ICT), whereas e-learning has a foundation in the Internet and associated communication technologies (Garrison, 2011). E-learning is "formally defined as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge" (Garrison, 2011, p. 2). In short, e-learning encompasses all kinds of teaching and learning models and approaches, where learning technologies are integrated. Regarding technology integration in higher education, therefore, it directly indicates the promotion of e-learning in higher education.

In this study, discussions with respect to the integration of technology essentially examine the incorporation of learning technologies—technological resources and tools—into the teaching and learning practice in higher education. Because discussions ~~upon~~ of innovations with learning technology in teaching and learning higher education is mostly connected to e-learning, the following literature review on the use of learning technologies in higher education is primarily focused on the application of e-learning technologies and approaches to a large extent.

Integration of Learning Technology in Higher Education

Keeping up with national and international trends and changes in education, research and practice in higher education has paid sharp attention to new learning technologies and their impact upon teaching and learning. Garrison (2011) noted, "Pedagogical and technological innovations are redefining higher education" (p. 1). Reeves, Herrington, and Oliver (2005) also acknowledged the growing impact and interest in higher education research: "With widespread access to computers, the Internet, course management systems, and other technologies, instructional technology research has become feasible for academics in any field of study" (p. 98). Consequently, many higher education institutions have competitively invested in the

14

acquisition of technological resources in order for technology integration in teaching and learning. Universities have made "high institutional investment in information & communication technology (ICT) infrastructure" (p. 3) to support technology-integrated models of teaching and learning (Kirkup & Kirkwood, 2005). ICT often refers to and embraces online technologies, including cloud-services, database, software, websites and webpages, documents, videos and all other kinds of online resources (Lawless & Pellegrino, 2007; Kirkup & Kirkwood, 2005; Reeves, Herrington, and Oliver, 2005). Many higher education institutions have considered ICT integrated teaching and learning as "offering high potential for business development and quality improvement" (Salmon, 2005, p. 202).

Despite the high investments in technology made on many campuses, however, only a little research in higher education has been examined the different types and effectiveness of the investments in teaching practice as well as the impact of technology integration plans and strategies (Cuban, 2001; Noble, 2001, as cited in Reeves, Herrington, & Oliver, 2005). Kirkup & Kirkwood (2005) point out, "While most higher education institutions now possess abundant computers and technology infrastructure, there is considerable variability in adoption patterns where the activities and purposes for which ICT is being used" (p. 1).

In order to examine the effectiveness and impact of technology in higher education, it is essential to understand how technologies are integrated in teaching and learning practice. Technology integration is understood and examined in terms of not only the use of learning technologies in the classroom, but also the ways faculty create or re-shape their teaching pedagogies and activities to be more productive and reliable in accordance with the use of technology (Hew & Brush, 2007). *Technology integration* is defined as follows (the Technology in Schools Taskforce, 2003):

Technology integration is the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools. Technology resources are computers and specialized software, network-based communication systems, and other equipment and infrastructure. Practice include collaborative work and communication, Internet-based research, remote access to instrumentation, network-based transmission and retrieval of data, and other integration: it is important that integration be routine, seamless, and both efficient and effective in supporting school goals and purposes (as cited in Lawless, & Pellegrino, 2007, p. 577).

In regard to teaching and learning in higher education, the most conspicuous types of the integration of learning technologies are commonly divided into three well-known pedagogical models. This division is based on the different dimensions of using ICT and degrees of having physical meetings with instructors inside the classroom.

Online Learning

Online learning is commonly called distance learning (Phipps & Merisotis, 1999; Sherry, 1995) or virtual learning (Salmon, 2005), even though the inverse is not always true. Online learning has its roots in distance learning (US Department of Education, 2009), which can be delivered not only via the Internet or web-based platforms, but also via TV, videos, audios, or other media. In a simple definition, online learning refers to 'fully online learning experiences' delivered to a removed audience via the Internet or the World Wide Web as the medium (Moore & Kearsley, 2011; Ally, 2004). The expansion of ICT—a combination of personal computer, the Internet, and the WWW—has brought distance learning that is "frequently marketed as e-learning and online learning" (Moore & Kearsley, 2011, p. xv). According to the Department of Education (2009), online learning is described with three core components: (a) whether the activity served as a replacement for or an enhancement to conventional face-to-face instruction,

(b) the type of learning experience (pedagogical approach), and (c) whether communication was primarily synchronous—in real time instruction—or asynchronous—with a time lag between the instruction delivery and students response.

Online learning is pervasive and increasing in higher education in the 21st century (Garrison & Kanuka, 2004), with demands for universities to "provide for a larger and more diverse cross-section of the population, to cater for emerging patterns of educational involvement which facilitate lifelong learning and to include technology-based practices in the curriculum" (Hicks, Reid, and George, 2001, p. 143, as cited in Garrison & Kanuka, 2004, p. 96). Online courses and open educational resources (OER), including 'massive open online courseware (MOOC).

Blended Learning

Learning technologies, ICT tools in particular, have been introduced into courses to support more flexible—hybrid or blended—models of teaching and learning (Kirkup & Kirkwood, 2005; Garrison & Kanuka, 2004). Blended learning—interchangeably called hybrid learning—is defined as the integration of classroom face-to-face learning experiences with online learning experiences (Graham, 2006; Garrison & Kanuka, 2004). Especially, blended learning has been highlighted as the greatest trend in higher education in the 21st century (*The Chronicle of Higher Education*, 2002 as cited in Graham, 2006), with a dramatic increase in the number of blended courses in higher education (Graham, 2006). Accelerated by the rapid emergence of technological innovations, "the widespread adoption of and availability of digital learning technologies has led to increased levels of integration of computer-mediated instructional elements into the traditional face-to-face learning experience" (Graham, 2006, p. 5).

17

Face-to-face Learning

  Face-to-face learning is described as conventional or traditional approaches. In face-to-face learning, the types of learning technologies possibly and technology-integrated instructional approaches can be broader and more varied than the ones in online learning and blended learning, which are based on ICT such as the Internet and the Web. Any teaching and learning practices where learning technologies are used 'inside the residential classroom' is a subset of this pedagogical model. Though recently online learning and blended learning have been increasingly emphasized to a great extent, face-to-face learning on campus still has been an essential focal point to be examined, when the 'integration of learning technologies' is discussed in higher education (Kyei-BLanKson, Keengwe, & BLanKson, 2009; Georgina & Olson, 2008; Kirkup & Kirkwood, 2005).

Faculty's Integration of Learning Technology

  Much research has found that faculty perceptions of the possible usefulness of technology in their teaching is the most significant factor for faculty to make decisions whether and how to integrate learning technologies into teaching practice (Hew & Brush, 2007; Lawless & Pellegrino, 2007; Ertmer, 2005; Zhao & Cziko, 2001; Mumtaz 2000). When faculty members, as teachers, are not using technology, it is not always because they lack the skills to do so (Zhao & Cziko, 2001), but because they lack the perceived need to do so (Wang et al., 2013; Zhao & Cziko, 2001). Therefore, faculty integration of technology needs to be understood from the ~~inside~~ perspectives of faculty. Many approaches have tried to explain faculty integration of technology by examining the external aspects of faculty and failed to recognize that faculty are

18

purposeful, goal-oriented individuals (Zhao & Cziko, 2001). Faculty perceptions of learning technologies and its possible benefits for meeting their higher-level goals can answer why some faculty make much and little use technology (Wang et al., 2013; Zhao & Cziko, 2001).

When individual faculty do not perceive the usefulness of technology and ease of use it, their perceived level of complexity to integrate technology is heightened (Keengwe, 2008; Mumtaz, 2000). Zhao and Cziko use the 'perceptual control theory (PCT) model' (Powers, 1973) to examine faculty behavioral changes (2001). PCT describes the integration of technology by examining three aspects of faculty perceptions of technology: (a) the effectiveness of technology in maintaining higher-level goals, (b) potential disturbances to other goals, and (c) the ability to control the technology (Zhao & Cziko, 2001). With regard to technology integration, tPCT implies that the faculty must believe that (a) technology can more effectively achieve or maintain a higher-level goal than what has been used, (b) using technology will not cause disturbance to other higher-level goals that he or she thinks are more important than the one being maintained, and (c) they will have the ability and resources to use technology (Wang et al., 2013; Zhao & Cziko, 2001).

Faculty perceptions of learning technology have a close relationship with their beliefs about technology, as well as their beliefs and assumptions about teaching and learning (Hew & Brush, 2007; Keengwe, 2009; Ertmer, 2005). One of the most important factors for faculty to decide whether to integrate technology are their beliefs regarding what should be in the curriculum (content) and the way in which their subjects should be taught (pedagogy) (Mumtaz, 2000, p. 323). Faculty's beliefs are likely to be congruent with their teaching approaches in the classroom. Cuban (1986) noted that, "If technology is treated as an instructional innovation, beliefs will play a significant role in whether or how it is adopted and implemented" (as cited in

19

Ertmer, 2005, pp. 31-32). Windschitl and Sahl (2002) also assert that there can be no vision of

technology integration that exists separately from beliefs about learners, beliefs about what

characterizes meaningful learning, and beliefs about the role of the teachers within the vision.

Windschitl and Sahl (2002) argue,

> The ways in which those teachers eventually integrated computers into
> classroom instruction were powerfully mediated by their interrelated belief
> systems about learners in their school, about what constituted good teaching in
> the context of the institutional culture, and about the role of technology in
> students' lives (p. 165).

In order to promote change in faculty beliefs upon learning technology, Ertmer (2005)

suggested three aspects to consider in the strategies: personal experience, vicarious experiences,

and social-cultural influences. According to Ertmer (2005), these aspects are important in

technology integration for the following reason:

> Because few current teachers have experienced, or even observed, the use of
> technology in their own schooling, they are unlikely to have many
> preconceived ideas about how technology should be used to achieve student
> learning . . . Teachers are likely to think about technology in the same way
> they think about other teaching methods, tools, or reform initiatives . . .
> Whereas some teachers may think of technology as just another tool they can
> use to facilitate student learning, others may think of it as one more thing to
> do (p. 30).

Institutional Support for Technology Integration

Given the substantial challenges that technology integration implies for higher education

institutions and given the issues that faculty are likely to experience in approaching the use of

technology in their teaching, the nature of the university's support system for technology

integration becomes centrally important. Early researchers suggest that institutional support

system—including collaborative leadership, technology infrastructure and resources, and

opportunities for faculty learning—is necessary to encourage faculty to integrate learning

technologies and effectively use the tools in teaching and learning (Georgina & Hosford, 2009; Kyei-Blankson, Keengwe, & BLanKson, 2009; Georgina & Olson, 2008; Keengwe, 2008; Lawless & Pellegrino, 2007; Mishra & Koehler, 2006; Ertmer, 2005; Kirkup & Kirkwood, 2005; Christensen, 2002; Mumtaz, 2000). "Organizational culture has tremendous impact on how technology will be used" (Barber, 2011, p. 74). Leithwood and Jantzi (2006) argue that institutional leadership and culture have significant effects on teachers' classroom practices. Leithwood and Jantzi (2006) also argue that, when it comes to reform or transformation of instructional practice, leadership should emphasize the capacity development and personal commitment to the shared goals of the organizations. In addition, Knapp (1997) emphasizes that a teacher's behavioral change in teaching practice is related to the organizational culture of learning. Therefore, establishing a supportive culture of reformed instruction within the institution can facilitate individual faculty's change effort.

These broad assertions about the role of organizational culture and leadership in supporting changes in teaching practice are supported by research that looks more specifically at technology integration in higher education. Most of the participant faculty in Keengwe's study (2008) indicated that they were more likely to use technology if they had: (1) institutional, departmental and peer support; (2) cross collaboration with other faculty using technology; and (3) were potential beneficiaries of a rewards program that was put in place to attract and motivate them. In regard to faculty members' perspectives, other scholars argue there must be instructional development support and following incentives that include academic recognition (Garrison & Vaughan, 2012). Furthermore, Anderson and Dexter (2005) have found that institutional support—professional development, technological committee, intellectual property policy, technology budget, and technology plans and administrations—has greater impact on

technology integration into the curriculum and teaching practice. In the following sections, core elements of institutional leadership and support for successful technology integration—collaborative leadership, learning technology resources, and professional learning—are examined.

Collaborative Leadership

Garrison and Vaughan (2012) suggest that successful implementation of technology is impossible without strong institutional and collaborative leadership, and the key is to sustain collaborative leadership with faculty. In this sense of collaborative leadership, universities that seek input from faculty in setting up the support system for technology are more likely to facilitate a feeling of ownership in the process (Georgina & Olson, 2008; Ertmer, 2005). Significant change is dependent on collaborative leadership that can lead the technology implementation and articulate missions, visions and goals of a technology initiative, providing faculty with clear action plans, teaching strategies, and resources to make it happen (Garrison & Vaughan, 2012, Keengwe et al., 2008).

Learning Technology Resources

In addition to collaborative leadership, proper instructional and technological support will assure faculty that they will not have to learn and manage the technology alone (Garrison & Vaughan, 2012). Buchanan (2013) suggests that resources and technical support must be addressed for adoption of learning technologies, and therefore adequate investments must be made in technical infrastructure and support for faculty training of technology. Others find that institutional support through providing resources is one of the predominant factors affecting the

technology integration process in higher education (Keengwe et al., 2008). These technology

resources include many things: school policies, faculty learning opportunities, technology

infrastructure, supplemental pay, incentives, technology mentors, IT support staff, pedagogy or

instructional design with technology experts, university level technology forums, and university

wide centers for faculty technology training (Georgina & Hosford, 2009).

Faculty Professional Learning Opportunities

Previous research has suggested that if faculty receive professional learning—

professional training or professional development—for technology integration, they are more

likely to incorporate technology into their teaching practice (Georgina & Hosford, 2009; Kyei-

Blankson, Keengwe, & Blankson, 2009; Georgina & Olson, 2008; Keengwe, 2008; Lawless &

Pellegrino, 2007; Mishra & Koehler, 2006; Ertmer, 2005; Kirkup & Kirkwood, 2005;

Christensen, 2002; Mumtaz, 2000). Over 200 faculty participants (about 70%) in Georgina and

Olson's study (2008) agreed that it was the universities' responsibilities to train faculty.

Professional learning or professional development in higher education is generally defined as

programs and activities that engage educators in reflection or learning about pedagogy with the

goal to improve teaching knowledge or practice (Bouwma-Gearhart, 2012). As these scholars see

it, faculty learning initiatives always should be informed by educational research and theory (as

cited in Bouwma-Gearhart, 2012). Bouwma-Gearharz (2012) argued that meaningful faculty

learning programs should intentionally reflect individual faculty's needs and intrinsically as well

as extrinsically motivate faculty.

Previous researchers have examined crucial features of faculty learning opportunities,

that enhance faculty's knowledge and skills on technology-integrated teaching practice as well as

promote effective faculty learning for technology integration: *the pedagogical content, duration and size of workshops, and collaborative relationships* (Georgina & Hosford, 2009; Georgina & Olson, 2008; Lawless & Pellegrino, 2007; Mishra & Koehler, 2006; Garet et al, 2001; Mumtaz, 2000).

Pedagogical content. Traditional approach to technology-based faculty development has focused on showing faculty how to operate technology tools rather than how to integrate technologies into teaching and learning practice (Knapp, 1996; McCannon & Crews, 2000; as cited in Lawless & Pellegrino, 2007, p. 593). In seeking the development of the knowledge and skills on technology-integrated teaching, however, strategies for faculty learning that include not only teaching the technical skills required to use the learning technology tools, but also teaching instructional design skills and pedagogies, are more likely to enable the teacher to effectively incorporate traditional teaching activities into the technology-integrated activities and online environment (Georgina & Olson, 2008; Wilson & Stacey, 2004, Garet et al, 2001). In addition, the content of effective faculty learning programs also includes theoretical grounding for developing or understanding the process of integration (Mishra & Koehler, 2006). Mishra & Koehler (2006) have contended that many traditional faculty training for technology integration fail to produce the "deep understanding" of technology-integrated pedagogy, by primarily focusing the training on technology knowledge—the technological skills required to operate particular technologies. Therefore, in order for faculty learning upon technology integration to be effective, it needs to highlight understandings of the concepts of using technologies for teaching and learning. pedagogical models to constructively use technologies, theoretical knowledge of students' learning (Mishra & Koehler, 2006).

Georgina and Olson (2008) noted that faculty "prefer technology training that

successfully integrates their pedagogy, not technology training that simply reveals how the instructional technology tools work" (p. 2). Hew and Brush (2007) have identified classroom management knowledge and skills, as well as pedagogy of technology-integrated instruction, as important factors when planning technology integration into teaching. Lawless and Pellegrino (2007) have suggested that the inclusion of opportunities for faculty to reflect on their pedagogy can enhance their ownership and confidence in integrating learning technologies and encourage them to believe that their curriculum will have a positive impact on student achievement.

Duration and Size: Lawless and Pellegrino (2007) have noted,

> The most common form of professional development is offered via one-shot workshop, with teachers spending as little as 1 hour to 1 day in professional development . . . Research has indicated that this type of fragmented approach to professional development does not meet the ongoing pedagogical needs of teachers and is often far removed or disconnected from day-to-day classroom practice (Gross, Truesdale, & Bielec, 2001; McCannon & Crews, 2000; Knapp, 1996; Moursund, 1989, as cited in Lawless & Pellegrino, 2007, pp. 593-594).

Mumtaz (2000) believes that individual faculty is not likely to translate their learning into reformed practice without long-term interactions. High-quality professional development activities are longer in duration (Lawless & Pellegrino, 2007). Faculty learning programs that seek to offer high quality support for professional learning are therefore ~~should be~~ planned as an ongoing—or longer term—and increasingly challenging process, which allows incremental revisions to teaching practice (Bouwma-Gearharz, 2012). Furthermore, effective professional learning programs provide opportunities for follow-up programs and activities where participant faculty share their successes, failures, and processes of technology integration (Georgina & Olson, 2008).

In addition to duration, existing research has suggested that effective faculty learning programs limit the number of participants per workshop and provide small group faculty forum

with trainers (Georgina & Hosford, 2009; Georgina & Olson, 2008).

Collaborative relationships. Promoting peer collaboration is significant in high-quality professional learning activities (Lawless & Pellegrino, 2007, Mumtaz 2000). Mumtaz (2000) emphasize that faculty's collaborative work with colleagues is closely related to the likelihood that reform changes will be made and those changes in teaching practice will be sustained. Effective faculty learning is also associated with the frequency and breadth of professional interaction with other faculty, including their involvement in specific peer activities, mentoring, workshops, and conferences (Mumtaz, 2000). When faculty regularly participate in professional interactions and activities, they are more likely to incorporate the use of technology and teach in different ways (Mumtaz, 2000).

Conceptual Framework

Drawing on these strands of literature, the following conceptual framework can be fashioned for examining the case of technology integration at the University of Washington. Central to the Framework is the institutional support system. in which institutional culture (promoted and sustained by collaborative leadership) joins with an explicit technology initiative (such as the 2y2d initiative at the University of Washington) and with particular technology resources, to guide faculty learning opportunities. All of these—and particularly the faculty learning opportunities—have the potential to reshape faculty perceptions of the usefulness and relevance of learning technologies in their teaching practice. Ultimately, their changed perceptions and what they actually learn by participating in faculty learning opportunities prompts actual integration into their practice.
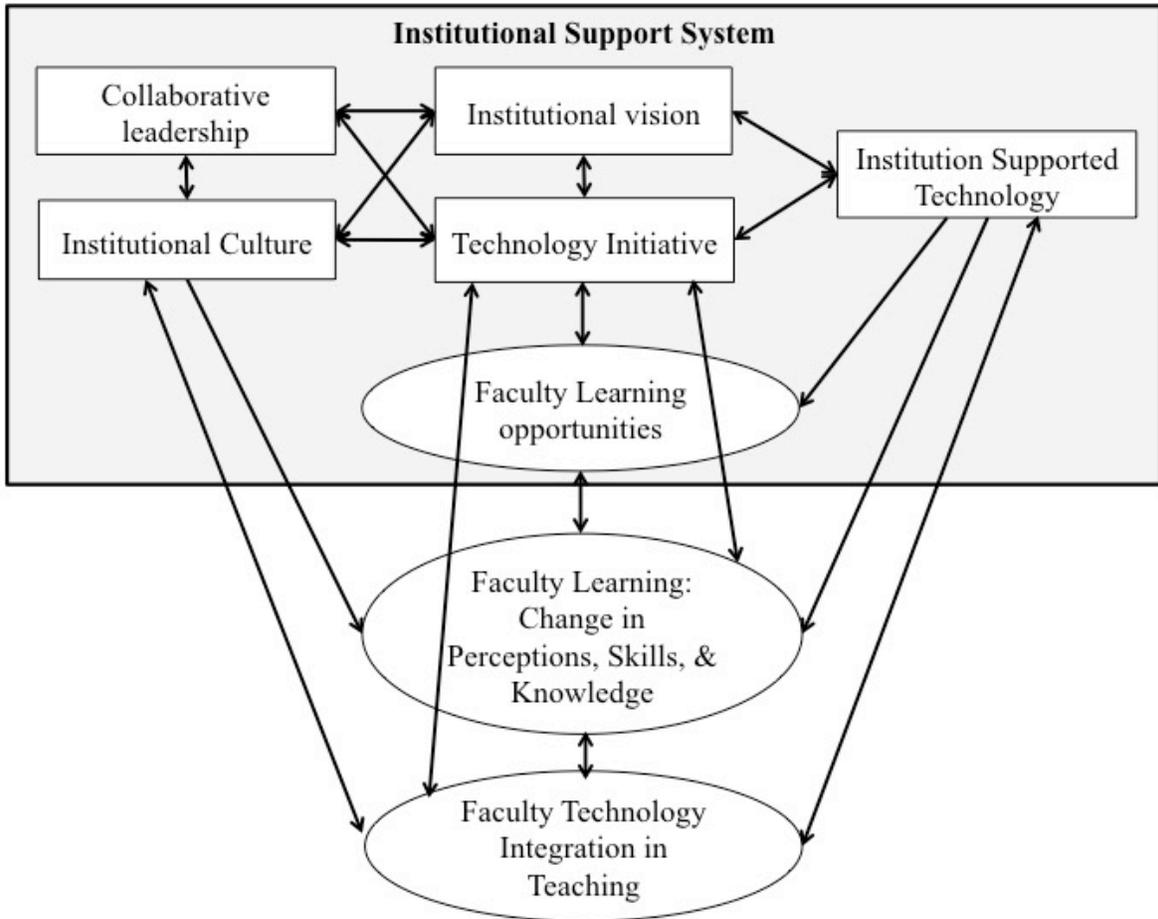
Figure 2.1: Conceptual Framework for Faculty Integration of Technology into Teaching

Chapter 3

Research Design and Methods

Glesne (2011) said, "A strength of qualitative research is that it can help reveal underlying complexities" (p. 188). This study employed a qualitative research method, because there is a lack of concrete theory to adequately explain the dynamics of phenomenon around institutional leadership and promotion of learning technologies in higher education. To be specific, this study followed "descriptive case study" method, which facilitates the exploration of a contemporary phenomenon within its real-life context, using a variety of data sources to better understand "the interaction of significant factors characteristic of the phenomenon" (Merriam, 1998, p. 29).

A case study is defined to use intensive analysis and descriptions of *a bounded system* or a bounded context such as a school, a specific policy, and so on (Glesne, 2011; Hancock & Algozzine, 2006; Merriam, 1998). Such a type of study provides "an in-depth understanding of the situation and meaning for meaning involved" (p. 19), placing the focus of study on process, context, and discovery (Merriam, 1998). "Case study is a particularly suitable design if you are interested in process" (Merriam, 1998, p.33). Particularly, a descriptive case study presents "a detailed account of the phenomenon under study" (p. 38), which can contribute to theory building in future (Merriam, 1998). Such studies are "useful in presenting basic information about areas of education where little research has been conducted" (Merriam, 1998, p. 38).

A qualitative case study is normally framed in a methodological theory. This study also borrows some analytic strategies from a specific research methodology, grounded theory (Glesne, 2011; Merriam, 1998), where "the investigator as the primary instrument of data

28

collection and analysis assumes an inductive stance and strives to derive meaning from the data."

This type of qualitative research produces a theory that is "grounded" in the data as the result

(Merriam, 1998). The outcome theory is usually "substantive (Merriam, 1998, p. 17)," which is

specific to certain situations, and therefore is useful in the specific practice where theories are

lacking (Merriam, 1998). Even though this study is not fully following grounded theory that

results in a substantive theory, it compares patterns found from different data sources in order to

construct some conceptual categories as well as framing inductively developed assertions about

the relationship among the categories (Merriam, 1998).

Sample Selection – Setting and Participants

Using a case study has a distinct advantage for seeking answers for "why" and "how"

questions (Yin, 1994 as cited in Merriam, 1998, p. 32). Due to the focus of my research

questions, which is mainly "to understand the process of effective institutional leadership to

promote the implementation of technology in higher education", case study approach seemed

likely to be the best choice to discover the extent of the implementation and its process. A case

study begins with "a choice of what is to be studied" (Stake, 2000 as cited in Glesne, 2011, p.

22), which involves "the selection of a research site, time, and people and event" (Burgess, 1982

as cited in Merriam, 1998, p. 61)." In qualitative research, the most appropriate sampling

strategy is purposeful sampling, which is "based on the assumption that the investigator wants to

discover, understand, and gain insight and therefore must select a sample from which the most

can be learned" (Merriam, 1998, p. 61). In purposeful sampling, the power and logic of it relies

on selecting information-rich cases, where the investigator can learn most about the issues of the

assumption (Patton 1990, as cited in Merriam, 1998, p. 61). In my research, the assumption

drawn from reviewing literature is that there is a possible relationship between the institutional

leadership and the faculty uses of learning technologies in teaching practice. Therefore, it is a

decisive part in this research to select a case where institutional leadership is visibly emanated in

respect of promoting and supporting the integration of learning technologies in teaching.

Consequently, I chose the University of Washington (UW), my own institution, as a research site

because the UW provides evidences of the research assumption and satisfies the selection criteria:

recently, the central leadership had successfully implemented institutional initiative, where the

promotion of learning technologies for faculty was one of the focal points. According to Glesne

(2011), selecting one's own institution as the research site, doing backyard research, places the

investigator in the vantage point for understanding the issues in depth for the following reasons:

> They have relatively easy access; the groundwork for rapport is already
> established; the research would be useful for their professional or personal
> life; and the amount of time and money needed for various research steps
> would be reduced (p. 41).

In this research, the UW is represented as the bounded system or "an instance" (Merriam,

1998, p. 28) of successful implementation of initiative and development of support system led by

the central leadership, for the campus-wide promotion of integrating learning technologies. My

membership as a graduate student and a teaching assistant at the UW had provided me with

opportunities for close observations and daily-based experiences of the research site through

having used the University's support systems for myself, which could facilitate more in-depth

observations and descriptions of the case (McDonald, 2008). In addition, my subjectivity of

being interested in the uses of learning technologies can make a distinctive contribution by

accommodating my personal qualities to the collected data (Peshkin, 1988, as cited in Merriam,

1998, p. 23). From the first term that I started at the UW in Fall 2013, for example, I have used

Canvas for the different courses I took, participated in Canvas tutorial workshops, and discussed about the effective uses of Canvas in the learning communities' meetings with UW instructors. For these reasons, the UW was a good choice for this case study of which purpose is to explore the process of effective institutional leadership in promoting the uses of learning technologies in higher education. Through discovering the detailed process and system of UW leadership for integrating technology, this study can not only offer insights for leadership practitioners to improve policy designs and implementation plans for expanding the uses of technology for teaching practice in higher education, but also illuminate meanings of creating effective support systems for faculty.

I narrowed down my sampling participants to staffs from three different divisions of the central administration; the Center for Teaching and Learning (CTL), Learning Technologies Group in UW Information Technology (UW-IT), and the Office of the Provost. Each of these departments had played significant roles in carrying out the 2y2d initiative and contributed to developing and maintaining the support system in the different levels and parts of institutional leadership while constantly communicating and collaborating with each other. Therefore, interviewing people from these departments provided substantive information about the visions and plans of the 2y2d initiative as well as the perspectives of the leadership, which will help to more clearly understand the process and factors behind the 2y2d initiative's successful creation of the support system for integrating learning technologies in teaching at the UW. These departments can be regarded as the representation of the central UW leadership not only for the perception of learning technologies and teaching practices, but also for the 2y2d teaching and learning initiative.

The Center for Teaching and Learning (CTL): The CTL was created in 2010 for "advancing teaching, learning, and mentoring on campus" (UW board of Regents, 2015). The main mission of the CTL is to support and strengthen the UW teaching community, and one of the CTL's major commitments is placed on "technologies that advance teaching and learning" (CTL website). Consequently, the CTL has sponsored various kinds of professional learning programs and workshops for faculty in order to support the effective uses of learning technologies in teaching, though some programs were not exclusively planned around the promotion of learning technologies. The CTL staffs can give revealing insights into support system around faculty learning as well as learning technologies for teaching.

UW Information Technology (UW-IT): UW-IT is responsible for strategic planning, oversight, and direction of the UW's IT infrastructure, resources, and services (UW-IT website). UW-IT has multiple divisions for different tasks, including Academic Services division that is responsible for academic & collaborative applications, accessible technology, classroom technology & events, student program and learning technologies. Learning Technologies unit, a subgroup of UW-IT, is specifically responsible for supporting innovative uses of technologies to enhance teaching by providing direct support, expert consultation, and help desks, developing and maintaining workshops and services, and evaluating learning technologies and practices. Staffs from UW-IT, Learning technologies unit in particular, would be able to elucidate the meanings, types, and uses of learning technologies for administrative leaders and faculty members at the UW. In this study, UW-IT mostly refers to Learning Technologies unit in the UW-IT.

The Office of the Provost: The Provost office is the one who drafted and implemented the 2y2d initiative and oversaw the process and progress in the big picture. The Provost office

also has explicitly encouraged the innovative teaching practices by highlighting and introducing

a number of the UW faculty members' examples of effective uses of learning technologies for

teaching in their publication to the UW community. Interviewing staffs from the Provost office

can guide this research around the high-level decisions within the central leadership, so that this

research can adequately track the flow of the implementation plan, and consequently it would

help the case analysis to be more accurate and detailed with the implementation process.

Data Collection

My design featured data collection from observations, documentary sources and

interviews of staff in each of the three main administrative units that have exercised leadership in

the University's efforts to promote technology integration in teaching practice. I summarize how

those sources relate to my main research questions in Table 1 below.

Questions		Data		Interview		
Main Research Questions	Sub Questions	Obser vation	Docu ments	UW IT (1)	CTL (3)	PROVOST (1)
1) Concept of learning technologies	- Types of technology - Pedagogies for teaching with technology		X	X	X	X
2) What support system and why	- New support system - Types of supports	X	X	X	X	X
3) Measure of implementation	- What information? - Sources of feedback		X			X
4) How to make further decisions	- Future plans - Challenges		X	X	X	X

Table 1. Data Collection Check-list

Observations

I conducted a few research observations before making interviews, because observational data, interwoven with informal interviews and conversations, can provide some knowledge of the context that can be used as reference points for subsequent interviews (Merriam, 1998).

Observing and participating these workshops was appropriate for the data collection, because the purpose of this study is to explore the university's support including professional development and resources for technology integration. The observation was focused on how the university is currently offering workshops on learning technologies, what features are focused during those workshops, and how the participant faculty members are responding to the workshops. Observations were made during an academic quarter, and the length of each observation was as long as each workshop, which usually takes for an hour or two. I took field notes during the observations.

As part of the UW support system around the uses of learning technologies for teaching, both the CTL and UW-IT have sponsored a number of different workshops with different objects on different topics about learning technologies for teaching, in various formats, settings, and times. Among these, I chose to observe in 3 tutorial workshops (2 for beginner level Canvas, 1 for intermediate level Panopto) by UW-IT, in order to understand the typical types of supports on the UW learning technologies. Information and schedules of the workshops were found on the website, and all of them were carried in a computer lab. I also observed the annual Teaching and Learning Symposium by the CTL, where I had a good opportunity to talk with people, including staffs from the CTL, UW-IT, and UW libraries, and faculty members.

I addition to the research observation, I have participated in and informally observed the different forms of the 'professional learning' kinds of support system, such as workshops,

presentations, courses, and learning communities that were sponsored or co-sponsored by the CTL or UW-IT, or together between Fall 2013 and Fall 2015. In terms of UW-IT programs, I participated in UW-IT tutorial workshops of every different topic on the uses of teaching tools, Canvas LMS and Lecture Capture services (Tegrity and Panopto). I also went to a few different talks sponsored by the UW-IT, where the UW faculty members were presenting their uses of technologies in teaching as the exemplary. Regarding to the CTL programs, I have been in different forms of professional learning for teaching: I took 2 courses of which topics were to help graduate student teaching assistants (TA's) to improve teaching practice and be prepared for teaching job market; I joined 3 Faculty and Professional Learning Communities (FPLC) where the topics were as follows: "Engaging Students in Large Classes: High Tech and Low Tech Strategies," "Active Learning Classroom," and "Helping Students Learn from Student Peers"; As a TA, I was required to participate in TA conference; and I went to multiple workshops related to teaching.

Documents

Documents are an easily accessible data source in qualitative research and they provide an excellent data source for studying changing social phenomenon. Public records are a major type of documents, particularly for a program level case study (Merriam, 1998). As the purpose of this study is to investigate the institutional initiative, "it is particularly important to seek out the paper trail for what it can reveal about the program" (Merriam, 1998, p. 114). In such a manner, the researcher can learn about things that cannot be observed or have happened before the study began, by looking at the official or unofficial documents generated by or for the program. Public records can "reveal goals or decisions that might be unknown to the evaluation,"

35

"provide valuable information about the program itself," and "stimulate thinking about important questions to pursue through more direct observations and interviewing" (Patton, 1990 as cited in Merriam, 1998).

In this research, the collected documents are basically sorted in three dimensions: 1) The webpages of the 3 sampling departments, the CTL, UW-IT, and the Provost office, 2) the 2y2d initiative vision statements, and 3) the Provost report series.

The webpages of each department provided ample information about their missions and roles, including their past and current events, programs, supports, reports, resources, and contacts. Some information was specifically targeting the UW faculty, showing the public aspects of the support system for faculty and technologies for teaching. Especially, the webpages provided plentiful resources related to the initiative, such as links other partner departments, project reports, and mission documents. Therefore, the webpages were frequently revisited during different phases of this research and referred as the map of primary data sources.

The 2 documents published in 2011, in regard to the the 2y2d initiatives, revealed the detailed vision statements by the committee, explaining what the teaching and learning at the UW would look like after implementing the initiative. Afterwards, the UW Provost office, in collaboration with UW-IT and the CTL, had published a series of reports that reveals the measure of the initiative's implementation and impact on faculty's teaching practice. The reports also introduced the trends of using learning technologies in higher education. For instance one report elucidated the meaning of MOOCs and hybrid learning pedagogy, paying special attention to Flipping the Classroom. The reports also highlighted many examples of the UW faculty members, who were doing innovative teaching practice with learning technologies. The examples were from various disciplines, about different degrees, ways, and activities of using

technologies in teaching. Whereas, one of the reports was mainly focused on introducing the university level integration of new learning management system (LMS) called Canvas, with the result of survey on using course webpages, online grade books, and online discussion boards.

Interviews

Interviewing is a common means of collecting qualitative data and finding out things that can't be directly observed, such as how people interpret the program (Merriam, 1998). Interview is also necessary when the research investigates past events that are impossible to replicate (Merriam, 1998). In this study, semi-structured interviews were conducted, where the mix of predetermined and open-ended questions are asked, in such the interviews assumed that individual participants define the world with their own perspectives (Merriam, 1998). The study is intended to explore the perspectives of the leadership on the use of learning technologies in teaching, therefore conducting more open-ended and less structured interviews, the semi-structured interviews, would be most desirable, while trying to follow the issues around the learning technologies.

The interview participants are recruited through network sampling, obtaining information from people who know people who meet research interests, and maximum variation sampling strategies, selecting participants across some range of variation in order to find common patterns across the variation (Glesne, 2011). The fundamental criteria for selecting the participants were their level of involvement in the 2y2d initiative as well as their roles in the leadership and support system. As a result, 3 staffs from the CTL, 1 staff from the UW-IT, and 1 staff from the Provost office participated in the interviews. Each interview took from about 30 minutes to 1 hour and went as semi-structured in-depth questions and responses. The interviews were mainly

focused on, but not limited to the following topics: the roles of the each individual participant's department in the support system and the 2y2d initiatives; the development of the support system for faculty; the perceived concepts of learning technologies for teaching; and the conceived future of the integration of learning technologies in teaching at the UW.

Data Analysis

In qualitative research, data collection and analysis is a simultaneous and interactive process, in such "analysis begins with the first interview, the first observation, the first document read" (Merriam, 1998, p. 151). Data analysis is the process of making meanings out of data, moving back and forth between data and concepts, and these meanings finally constructs the findings of a study, or categories (Merriam, 1998). In this research, thematic analysis was chosen as an initial analysis scheme, which requires constant reading and coding across the data for further analysis and description (Glesne, 2011). Thematic analysis primarily focuses on searching through and coding the data for recurrently emerging themes and patterns (Glesne, 2011). In such an approach, the investigator looks at all coded data bits and finds "how it changes or varies in relationship to other factors" (Gibbs, 2007; as cited in Glesne, 2011).

In addition, this study uses a search for themes and patterns that cut across the different kinds of supports from different departments, and then compares the findings from one another to build categories and subcategories (Merriam, 1998; Glesne, 2011). This kind of data analysis is constant comparative method, which is to constantly compare one particular aspect from interviews, observations, or documents to another aspect in the same data set or another data set (Merriam, 1998). "Making comparisons is an analytical step in identifying patterns within some

theme" (Glesne, 2011, p. 188). This method was used throughout the data analysis process, along with thematic analysis method.

The initial step to search for themes began with writing memos and applying rudimentary coding schemes by consistently reflecting on data, organizing them, discovering what data tells, and trying to find meanings. Defining the meaning is called *coding* or *indexing* (Glesne, 2011), which is a progressive process of sorting and defining the scraps of collected data that are related to the research questions (Glesne, 2011). I repeatedly read the interview transcripts to make initial codes and notes on the interviews, and kept reviewing these with the document and the field notes from the observations. This coding process was continued with the progress of data collection, and the tentative codes – themes and patterns – were drawn from it. Arranging the codes into categories and subcategories was also part of this analysis process. As a result, a framework was created upon the relationships among the categories for the coded data.

In qualitative research, the researcher is the primary instrument for data analysis, which means that data are mediated through the researcher (Merriam, 1998). As a human instrument, it is reasonable to discuss the researcher's positionality in the research site. I have studied at the university as a graduate student for about two years. From the beginning, I was already interested in and looked at the use of the newly launched learning management system at the university, Canvas, as well as effective use of learning technologies and technology-integrated pedagogy, such as flipped classrooms. Looking for answers and examples, I have participated in the technology workshops, teaching and learning workshops, graduate student workshops, learning communities, and courses, and have talked with facilitators, administrators, trainers, faculty, and students. Therefore, I have built my perspective as a recipient of the support system as a student and a participant. In addition, because I also have taught for a year as a teaching assistant, I also

personally have experience with learning technologies for teaching practice and the university's support system for the instructors.

Accordingly, my unique positionality as a graduate student, a workshop participant, and an instructor all together have interplayed and shaped my view on the issues of learning technologies at the university. My perspective as the multiple role player in the research site as well as the researcher myself contributes to interpretation of the stories and data I collected from the leadership. As a human instrument for data analysis, instead of fully agreeing and relying on the stories from the leaders' perspectives and retelling the stories, I can use my own perspective in order to critically sort and interpret the information in different views.

Design Limitations

There are possible limitations in different dimensions of this research design. In light of the data collection, firstly, locating and collecting data is limited only by the researcher's imagination, industriousness, and timeline (Merriam, 1998). For example, there might have been other sources documents, events, or people that could have provided more information applicable to the research purposes. However, it is physically impossible for the researcher to observe past events or attend every event. Even if it's physically possible, the researcher cannot reach to all the institutional leadership practitioners nor get every individual of them to consent to interview. Therefore, selecting the observation and interview samples was purposefully focused on the cases that could provide the evidences and essence of the phenomenon as intense as possible.

In terms of the data analysis, the possible limitation is determined by the extent of the researcher's the capability and intuition in finding meanings from data. In addition, the

researcher's responsiveness to the context, adaptation to techniques, and sensitivities to different

aspects (Merriam, 1998) may affect the result of the study.

Chapter 4:

Findings: Visions for Innovative Teaching, System of Support for Faculty,

and the Evaluation of Implementation

The analysis of data in this study is mainly divided into three groups of findings with respect to the 2y2d and the University's Teaching and Learning initiatives. The first group concerns the visions for innovative teaching with learning technologies, which include the ideas about the past and future visions, pedagogies for innovative teaching with learning technologies. The second group concerns the system of support for faculty in order for innovative teaching, which is created as the process and result of the initiatives. The system of support covers the roles of the leadership—collaboration, communication and promotion strategies—and faculty learning, perception, and rewards. The third group concerns the evaluation of implementation and process that encompass collecting feedback and understanding success.

Throughout the discussion, I use the term *initiatives* to include the 2y2d initiative and the Teaching and Learning in the 21st Century initiative, the term *learning technologies* to refer to any types of technology tools used in teaching, the department name *UW-IT* mostly refers to the 'Learning Technologies group' that is a subgroup of the UW-IT, and the term *leadership* to include the Provost Office, the CTL, and UW-IT. I use pseudonyms to describe the interview participants from the three leadership units. There are three staff members from CTL, Emma, Mia, and Zoe; one staff member from the UW-IT, Liam; and one staff member from the Provost Office, Ava. Their interviews are quoted in the discussion of the findings in the following sections.

Visions for Innovative Teaching with Learning Technologies: Past and Future

Visions, Pedagogies, and Learning Technologies

An official from the Provost's office describes the University's vision this

way:

> So all of our initiatives are about changing the culture around something.
> Changing the culture of the university . . . so the culture of university around
> teaching and learning traditionally has been teachers teach very
> independently, traditionally there was no technology, because just it wasn't
> there. So, and often, it was one teacher talking a lot to a room full of students.
> So we're trying to change the culture into more engaged, more integrated,
> more fluid with technology and pedagogy. We're trying to increase the faculty
> members' knowledge of what good teaching is and their excitement to want to
> try it.

As quote delineates, the visions of the 2y2d and the following initiatives—Teaching and

Learning in the 21st Century—are clearly focused on spreading the culture of innovative teaching

practice. The leadership of the initiatives conceives of innovative teaching practice that not only

incorporates technology, but also applies active learning pedagogies in order to for technology

integration to be effective in teaching and learning. However, in innovative teaching practice,

technology does not always have to be incorporated. There are many good examples of

innovative teaching where technology has not appeared in higher education. Some instructors

might never even touch learning technologies, but still it is possible that they are innovative

teachers with respect to other aspects of pedagogy, even if they do not know or use cutting-edge

technologies. Every staff from the leadership units who participated in this study is well aware of

this point as well, and accordingly they suggest that technology in education should always be

considered after the consideration of pedagogy. For example, the leadership perceives that

learning technologies are not separate from the pedagogies:

43

Mia: How technology is used in service of that [learning], rather than… so technology becomes second, becomes a mean to an end, rather than focusing on any particular types of technologies.

Ava: . . . We feel that you should put learning first and tool technology second.

Past and Future Visions for Innovative Teaching

In order to examine the visions, I looked at the documents that state the visions, which are publicly accessible online, as well as talked with the leadership. The visions have got into shape based not only on the trends in higher education responding to quickly changing society, but also on the 'Sustainable Academic Business Plan' responding to decreasing financial support from the state. Ava, a staff from the Provost office, sees the visions as "why and what do we need to do to be this UW of the 21st century."

> This initiative is the result of discussions in the UW community about 'what is the future of education including teaching and learning . . . trends we expect, what the future of teaching and learning look like . . . There is a fundamental shifts in how education can be delivered, partially with technology, partially we were looking at we had enormous budget cuts from the state . . . some of that was just the nature of education . . . we are competing with different universities, that there's online universities, and there's international universities, that that's all changing.

The visions of the whole initiatives, as stated in the documents, aim the following dimensions with respect to teaching and learning, which includes: competitive environment with competition in higher education; collaboration; technology-reliance; nimble change; funding. Each dimension either explicitly or implicitly promotes the integration of learning technologies in teaching practice in order to create and expand more innovative teaching and learning culture at the university. These visions well describes how the leadership conceives of the integration of learning technologies and its impact when concerning the future of the institution.

Among the five main visions, three visions—becoming a more competitive environment, becoming more technology-reliant, and becoming more nimble through change within the university—highlight the necessity of updating technological infrastructure to offer: ubiquitous access 24/7 to classes; maintain high quality teaching; and online and blended learning options. Particularly, several interview participants from the leadership indicate blended learning model as the key element of innovate teaching and learning practice at the university. Emma, a staff at the CTL predicts continuously moving face-to-face courses into more blended or online courses, and that most of the courses at the university will become either blended learning in that there will be no division between face-to-face and blended model. Liam, a staff at the UW-IT also confidently discusses the future use of learning technologies at the university in 5 to 10 years:

> 5 years? I think we're gonna see more, well I would assume we're gonna see .
> . . I think we're gonna see more hybrid [= blended] teaching.

Another vision, "collaboration," maintains the importance of collaboration and network within the university across units and disciplines towards a common goal, innovative teaching and learning. Collaboration not only refers to the interdisciplinary collaboration in teaching and learning, but also indicates the collaborative work between the leadership to support for faculty and innovative teaching practice. Emma, Mia, and Zoe—all of the CTL staffs whom I interviewed—say that the CTL and UW-IT has been partnered very closely on programs, services, conversations, and research in order to create the effective support system under the initiatives. Ava says that the Provost Office promotes and supports this partnership between the leadership:

> In most of our initiatives, we [the Provost Office] have brought people
> together for the committees who usually work quite separately. And they've
> been really working a lot more together and . . . working more together

outside the committees . . . our campus people want to work together as long as you make it easy, possible, and you tell them we encourage it, people will do that.

Ava also emphasizes the synergy and impact of the collaborative relationship between the CTL and the UW-IT:

If they [CTL and UW-IT] work together, there's a lot more you can do in a powerful way, that makes your work even have more impact and be even better, because you are working with people who have a different perspective and can help convince this group of people better.

The last vision, "funding," implicates the sustainable plans to overcome the budget cut from the state by investing in infrastructure and increasing the access to courses online. The potential to improve the flexibility of the classroom spaces and schedules through promoting blended learning was acknowledge by Liam and Ava:

Liam: For a simple number's fact, we're continuing to grow, we're not able to build buildings all the time, and so hybrid [= blended] teaching for me really seems to like a sweet spot, where you can shift learning in certain ways to free up the classroom space.

Ava: We have a whole committee looking at classroom spaces and part of that is about the schedule. But part of it is about technology in the rooms. . . We renovate 80 classrooms a year, but we have thousands [of classrooms].

Likewise, the initiatives are based on the assumption, "what can we do with our existing money" and "without extra money" in order to improve the quality of teaching and learning, "just by coming together and coordinating better." The leadership reveals that they perceive innovative teaching with learning technologies, specially blended learning, will play the key role to achieve the vision regarding of funding.

46

Pedagogies and Learning Technologies for Innovative Teaching

In regards to innovative teaching with learning technologies, every interview participant from the leadership emphasizes that 'teaching and learning' comes first before 'learning technologies' in order for effective use of learning technologies in teaching practice. Liam from the UW-IT discusses the successful use of learning technologies as follows:

> I would say that successful use of technology in an educational environment is that it's enhancing the learning, that it's helping faculty achieve their learning objectives . . . It needs to be efficient and it needs to provide students with resources in our current environment . . . I wouldn't say that instructor has to use technology, right? For me, it's more about what is the learning, what is the goal what do you want students to do, and why do you want them to do it, and then you can start thinking about which technologies you can use, and then once use them, you can really evaluate their effectiveness or hinder the goal.

Mia from the CTL also emphasizes the importance of concerning the learning goals before deciding to incorporate learning technologies in order for successful use of them:

> I think there's many ways of using this [technology], but I think that we [the CTL] often try to focus on if people are using, have well-defined learning goals or objectives, that means for helping students achieve those goals, are appropriate to those, and that support students well, and are implemented very clearly, and lots of supports with clear assessment that are related to that . . . So, technology becomes second, becomes a mean to an end rather than focusing on any particular types of technologies.

Ava from the Provost office also agrees with this philosophy that "pedagogy is first, and technology is a tool." This agreement among the leadership shows how they perceive the learning technologies and conceptualize their integration into teaching practice at the university. In accordance with this philosophy and the idea about successful use of technology in teaching, the leadership broadly defines the learning technologies as 'any technology tools that helps faculty accomplish learning goals and objectives' and 'UW supported technologies' that include Canvas LMS, Panopto lecture capture system, and Catalyst web tools.

This idea leads the focal point to "Active Learning" pedagogy, which is highlighted by the leadership and encouraged in the initiatives, because research supports that active learning pedagogy is effective in teaching practice with learning technologies. In addition, the university has launched Active Learning Classrooms (ALC's) through collaboration with the UW libraries. Ava describes the promotion of active learning in regards to innovative teaching:

> We may call it Transformative Teaching, but it's really about Active Learning. There's good research on, I mean the research supports active learning. So it's about trying to move people away from lecture, so how do we do that in a way that inspires them and doesn't make them feel badly if they've been lecturing.

Similarly, Liam also considers active learning as a suitable pedagogy for the effective use of learning technologies and predicts the increment of active learning at the university:

> I think some of the things we [UW-IT] have been looking at in terms of technology around active learning classrooms. In that they help foster interactive between students, help locate students' learning back in the classroom, as opposed to pushing learning outside the homework. . . . So I really think it's more about the teaching than the technology, and the technology is gonna support it. . . . Most of our work on our campus around that [blended learning] is really focused on the active learning, right? So it's not like

The System of Support for Faculty and Innovative Teaching: The Role of Leadership for Faculty Learning and Rewards

Each department or unit that is exercising leadership for technology integration —the CTL, UW-IT, and the Provost's Office—not only plays different roles, but also collaborates together in creating and maintaining the support system for faculty. The core component of the support system includes 'faculty learning' opportunities—Technology Teaching Fellowships, conferences, workshops, presentations, and resources such as examples, research, and reports— in order to change faculty perception and teaching practice upon innovative teaching with

learning technologies. In addition, the support system includes intrinsic as well as extrinsic rewards for faculty who have successfully implemented and used innovative teaching practice.

The System of Support: The Role of Leadership for Faculty Learning

The roles in the leadership are well divided in creating and maintaining the support system for faculty for innovative teaching, including faculty learning opportunities and rewards. At the same time, each department closely communicates and collaborates with other departments.

The CTL was completely redesigned and restructured with new mission in concurrence with the initiatives. The role that the CTL has mainly concerns the support for instructors in regards to pedagogy and teaching practice. The CTL has provided faculty learning programs and resources that includes the webpages about Flipping the Classroom [= instructional model based on blended learning] on their website, which was one of the most visited webpages in the website. Mia describes her role in the CTL as well as the role of the center, when it comes to promoting learning technologies:

> Our support is more focused on pedagogy; how they are thinking about, how they are using technology in their courses, how it's supporting their goals, you know, and the practices around that. So we, whatever people bring in, we'll try to consult on, try to work with them on, but we give them the caveat that we are not technologists.

Mia expresses that the CTL supports any technology tools, including the ones not devised for academic audience, that faculty apply to teaching, and helps them make it as effective as possible. The CTL staffs generally provides individual faculty with consultations to improve the effectiveness in teaching practice, and sometimes suggests the use of technology if they believe it'd help to achieve the learning goals and objectives. As it was found earlier, Mia also

49

emphasizes that "technology becomes second, becomes a means to an end, rather than focusing on any particular types of technologies" in their service. Zoe from the CTL also describes the service of the CTL in partnership with the UW-IT, in regards of innovative teaching with learning technologies:

> If we are thinking in terms of using more technology, I would say that the center, we try to convene conversations about using learning technology and teaching, and that's always been in conjunction with UW-IT. So the CTL, I don't think we've ever done a workshop on technology without doing it with somebody from UW-IT.

In addition, with the UW-IT and the Provost Office, the CTL co-sponsored 1 week-long faculty learning program—Technology Teaching Fellows (TTF)—few years ago, where the agendas were exclusively focused on fostering innovative teaching with learning technologies and redesigning courses to online or blended learning. The TTF accommodated 3 cohorts of faculty, including 59 people from 25 departments, and these participant faculty members received a week of training for re-designing courses to integrate learning technologies as well as $3500 grants.

> It was kind of a focus time to help instructors think about innovative teaching, particularly with technology. So there, the CTL and UW-IT collaborated to do a project called the Technology Teaching Fellows (TTF) . . . 1 week, about 20 or 25 faculty came together had workshops and time to work, and they had to propose project where they change the course substantially using technology. Mostly it was putting a course online, or making a course more of hybrid model. So they developed it and had support with a technology side, had support with pedagogy, and had discussions among them . . . Designing in teaching, so I did a workshop with them on course design. We did things on assessment, planning activities, . . . how could you do that in an online class?

Zoe explains that faculty in the TTF used Canvas in order to change their course to be a hybrid or online course, because that is what UW-IT supports. Also, the TTF programs and workshops were in the ALC's. In the interview with Ava from the Provost office, Ava reveals

that many of the faculty in the TTF ends up with teaching their courses in the ALC's. This fact implicates that the environment of faculty learning programs has influenced faculty perception and teaching practice.

Another remarkable faculty learning program sponsored by the CTL under the initiatives is Faculty Professional Learning Communities (FPLC's), which are also facilitated by the UW-IT, the libraries, and faculty members. FPLC's "bring together educators from different disciplines to discuss, reflect, and collaborate on a teaching and learning topic of mutual interest" (http://www.washington.edu/teaching/communities/learning-communities/more-information-about-ctls-learning-communities/). Each FPLC usually consists of 6-12 instructors, convenes a meeting every week, and continues throughout the academic term. The past topics of FPLC have concerned active learning, engaging students with technology, and flipped classroom.

On the other hand, UW-IT covers different aspects in the support system for faculty in regards to innovative teaching with learning technologies; the service at UW-IT is directly connected to technical supports. UW-IT runs a service center and the help desks, and provides 24/7 email and phone call service as well as technology resources for faculty and instructors. For instance, one staff said that they normally receive over a thousand emails per week regarding of the technical problems and questions about learning technologies.

UW-IT also facilitates tutorial workshops on the UW-supported learning technologies—Canvas, Panopto, and Catalyst web tools of which agendas include collaborative tools, grading, quizzes, rubrics, and recording and editing lecture videos. Liam says this:

> So the first step is really helping faculty member, many of whom are not technologists, understand the technology, understanding what and really how it works, so functions.

Furthermore, another core role that UW-IT plays is that they conduct research on new learning technologies and their effectiveness in teaching and learning at the university:

> [UW] IT people present to them [technology oversight working group of faculty], 'Here's what we thinking about technology, we're putting, we are testing these' . . . They get advice from the group and then they also share with the group what's going on with new technologies and what's being developed.

UW-IT has a research team that pilots every technology tool the leadership is interested in and considering of, before making suggestions and decisions to release the technologies across the campuses. UW-IT constantly keeps trends by looking at different technologies and conducts pilot studies to examine different options and test it with students and faculty in order to find the right tools that are needed for the university. Ava from the Provost Office emphasizes this role of UW-IT:

> When it comes to large technologies that we've chosen to implement, that really runs through UW-IT. So IT department has a 'learning technologies' group that really looks at that. . . . So IT looked into different lecture capture technologies, they did a study . . . they piloted with faculty unit, saying 'do you like it, do you not like it, do you like it better than this one?' . . . they [UW-IT] get the results, and we [the leadership] decide to go with Tegrity. . . . So they're constantly looking at the tools and saying, 'is what we have as good as what's out there? Is there something better?' . . . [UW-IT] looks at the different options and they test it with students unit and faculty. They [UW-IT] did a really interesting pilot that it wasn't because of us that wasn't successful, but the pilot told them this technology is not ready.

As noted earlier, the CTL and UW-IT closely work with each other, collaborating on projects, co-sponsoring programs, facilitating faculty conversations, and more. However, before the initiatives, the CTL and UW-IT used to work separately from each other. Ava delineates that the role of the Provost Office is to encourage these two departments to collaborate under the shared institutional visions and goals of the initiative:

Teaching and learning initiative is the partnership between the Office of the Provost, the CTL and the UW-IT, who are making actions. When it comes to technical things, it's the work on the UW-IT, whereas it's the work on the CTL, when it comes to teaching and learning. The Provost Office has brought these two groups, CTL and UW-IT, together and promoted collaborations between the two and the Provost Office. . . . The partnership between the CTL and IT, it's relatively recent.

In addition, the Provost Office supports these two departments for the pilot projects by communicating with participants, conducting surveys, assessing the success, and providing staff.

Another key role of the Provost Office, in regards to faculty learning and their perception, is to provide resources and safe environments for faculty to try experimenting with new teaching approaches and tools. The Provost Office has spotlighted and introduced the various good examples of innovative teaching practice by UW faculty in the Provost Office reports, which have been sent out to the whole university community. About 80 faculty and their stories have been featured in the report, who were already doing innovative teaching, in order to get other faculty inspired and learned to move into the new direction of teaching. Ava gives a detail about this kind of support delivered by the Provost Office:

They [low-tech faculty] are not doing these innovative things, but they think they [innovative things] are kind of interesting. But they are busy. They're busy with their research, they're busy maybe they have kids, they've got written grants, they're giving talks, they're teaching classes . . . So we think about those people and we think how we can make it [innovative teaching] easier by providing opportunities for them to learn about what's happening with these people who are already doing it. . .So, that's our strategy in terms of thinking about how do we help faculty get from here to here [low tech to high tech], shine a spotlight, give them resources, give them resources that are small step . . . [We] make the tools really easy, make the technology tools available, make sure we pick the best ones, and then show people how to use it, show people examples of other people using it.

The featured faculty members are thoughtfully chosen to include varied ranges of ages, teaching experiences, disciplines, and technology skills of faculty, in order to encourage more

faculty, including whom are old, at the end of their career, or more uncomfortable with technology.

The System of Support: The Role of the Leadership for Rewards

Ava explains that the Provost Office acknowledges the issues and concerns around faculty promotion and tenure, which may hinder faculty from putting time and attention to make changes in teaching practice:

> They [faculty] are thinking about their tenure is coming up, they have to focus on tenure, they've gotta write grants, so when you think about all the things that faculty members spend their time doing… Even if they care about teaching and learning, it might not be the no. 1 thing on their lists, and it's not up until recently, well it's still true, it's not rewarded in a big way. . . . When you go up for promotion or tenure, there is information in you packet on your teaching, but really what people are looking at is your research, on your scholarship. So, as long as your teaching isn't terrible, actually faculty member jus told me this yesterday, faculty member is like as long as your teaching is not terrible, if you have good research, you will be successful.

To overcome this challenge, the Provost Office believes that faculty needs to be rewarded for their efforts for improving and maintaining high-quality teaching practice. Even though the Provost Office doesn't have a direct control over the promotion and tenure, Ava says that the Provost Office has come up with creating a new award for faculty who are doing innovative teaching with technology:

> This idea of how do we help make changes in how people are rewarded, we don't have control over that. . . . Every time we talked with people about 'How do we improve teaching in campuses,' we need to reward people for it. . . . So we created the new 'Distinguished Teaching Award for Innovation with Technology.' So that's a result of this initiative too. . . . We made now progress on promotion and tenure rewards. . . We wanna give, celebrate the people who are like amazing, and reward them. Because actually publishing information about them, she is so proud.

Even though the award doesn't directly help the promotion, the award makes the awarded faculty feel good and tells they are good teachers. This effort on rewarding faculty for innovative teaching has propagated the UW community and found an indirect way to influence the promotion and tenure. The new UW president has asked the CTL to write some guidelines for tenure decisions committees on how to look at teaching in order to suggest good practice for thinking about teaching, assessing teaching and learning as a part of tenure.

Another effective means for rewarding faculty is highlighting the faculty members who have successfully integrated technology for innovative teaching, and have improved the quality of teaching practice. As found earlier, almost a hundred faculty have been spotlighted in the Provost Office report series as well as university-wide conferences and presentations:

> So one of the things that my office does . . . is we shine a spotlight on the people who are doing really cool things. So we have this whole Provost report series. . . . We don't need to give them just definitions. What we need to do is we need to show who is doing the cool stuff. Here all these people that are doing really amazing things. . . . So they [the featured faculty] are presenting what they've done. So this is all part of the spotlight these people.

Furthermore, spotlighting faculty members—from various disciplines, different teaching experiences, all ages, and diverse backgrounds—and sharing their stories of using technologies varied ranges—from simply using clickers in the classroom to record instructions for blended and online courses—can intrinsically inspire other faculty members to try out and make changes. Ava provides an example of an old professor that might be an inspiration for other faculty who are in similar ages:

> So when you think about these [innovative] people, a classroom veteran, she is I think 70 years old, and she is trying technology in active learning space [ALC]. So we want to, we are very thoughtful about the people who are more likely to look like her, and that actually might inspire them. You can learn technology. Well, and she is really innovative and exciting. But there are lots of people who are at the end of their careers, some are more uncomfortable

with technology, but not all. And we want to encourage people, we wanna give them message, this is not just for young faculty, this is for everybody.

In addition, those highlighted faculty actually share their strategies for successful innovation, resources—their peers, research, institutions, websites, and etc.—that they have found helpful, lessons they learn from tries and changes, and challenges. The reports describe the details of these faculty's perspectives including their experiences, opinions, their students, reasons, motivations, and evaluations. Emma from the CTL mentions that research tells that faculty tends to like learning from peer faculty members. Likewise, the examples in the report series may help and inspire faculty who are looking for what other faculty member is doing for innovations.

The Evaluation of Implementation: Collecting Feedback

and Measuring Success

As the last group of findings, different features are found to evaluate the implementation of the initiatives and the support system: collecting feedback from faculty in the faculty learning programs, and measuring success by looking for the examples of innovative teaching practice.

The Evaluation of Implementation: Collecting Feedback

Staffs from both the CTL and UW-IT speak that they collect feedback from faculty in regards to their support system, particularly about their faculty learning programs. Although they imply that they also unofficially hear and look at feedback and opinions on a daily basis through talking, emails, phone calls, meetings, and articles, the following sections rather reveals their official channels of getting feedback. The leadership, especially the CTL and UW-IT, uses these feedbacks to understand the faculty perceptions upon their support programs, and plan the following and new programs that meet the faculty needs.

First, the CTL staffs talk with the faculty participants in their support programs to hear their feedback and perceptions on the programs, and ask them to fill out surveys right after the workshops. The questions for faculty include the following ideas:

> So, we wanna know why they're there, what they're looking for, we also do it workshop evaluation and ask them what was useful, what was that, and so we do that generally with anything that we do . . . What people tells us about, why they're interested in our workshops, and what they wanna learn about the technologies and what was helpful and not helpful in the workshops.

In addition to the participant feedback, the CTL also pays attention to the feedback from the facilitators of their support programs. Emma gives more detail about how the CTL gets feedback and what aspects the CTL looks at in the collected data:

> Whenever we assess, the central way we assess the impact of the programs is by collecting data from the program participants. So that we might give a hard copy or online survey to people who participate in our learning communities, in the conference, in the facilitated conversations we have with faculty, in group-consultations. So we tend to get feedback both from participants, and from facilitators. And we ask them you know we say, 'Here are the goals of this program. Did it achieve these goals by your measure? And what changes have you seen in your teaching or students learning as results? And how do you know?'

In short, the CTL seeks to understand not only faculty perception upon the agendas and contents of their support programs, but also their evaluation upon the programs' effectiveness in achieving the intended goals as well as changing the perceptions of participant faculty.

UW-IT, similarly, gets feedback from faculty instructors about effectiveness of their workshops and services. In addition, UW-IT tends to get many requests for technical helps—a staff mentions that they get over a thousand emails per week—from faculty, and they use these help requests to decide what to improve in their services. Liam describes how UW-IT gathers feedback from faculty and what questions they ask:

Some of it is user feedback for us, just from talking to our clients, some of it are our instructor feedback on what they find is really works in the workshop and things. We are reflective through the process, so sometimes you just know when the contents are not working. . . . Also we all work on the 'Ticket,' so with the help Ticket, we see Canvas releases changes every three weeks, which is a really new thing for many of our clients. . . . Every year, we do an LMS survey, so we survey our faculty and our students and we try to find out what tools they're using, what tools they need, what tools you know we ask them about in our workshops of these . . . We're just under the process now analyzing who is taking our workshops over the last couple of years.

The Evaluation of Implementation: Measuring Success

The interview participants also discuss how the leadership evaluates the impact and success of the implementation of the initiatives in regards to innovative teaching practice with technology.

First, the UW-IT looks at the percentage of the users of the UW-supported technologies. For example, Liam demonstrates that the adoption of Canvas is about 27% on the Seattle Campus.

Second, the CTL and UW-IT have piloted new learning technologies to observe the impact and effectiveness of them in teaching practice, in that the positive impact of the technology integration in teaching and learning has proven before implemented around the university. In terms of the whole university, however, there is little means to measure the impact of the implementation.

Third, Emma mentions that there was a follow-up survey after the TTF in order to track the effectiveness of the faculty learning program and the changes made in teaching practice:

For the technology teaching institute [TTF], which was co-sponsored by the CTL and by UW-IT, we after they transformed their courses, so that it used more technologies, we survey them again. So, first they changed their courses together, then they taught the course, and we surveyed them again, so what was the impact of these changes on your course and how do you know.

58

Fourth, the CTL sponsors the annual Teaching and Learning Symposium, where UW faculty members and instructors present their research on teaching and learning as well as their teaching practice. Zoe describes what she observed and heard from 4 faculty from different disciplines, who talked about ways they used technology in their teaching:

> Couple of years ago, at the Teaching and Learning Symposium [a conference sponsored by the CTL], we had a panel of 4 faculty who talked about using technology in their teaching. One kind of from enhancing a face-to-face to teaching on MOOC.

Lastly, the report series published by the Provost Office specifically presents the successful impact of the implementation in teaching from the leadership perspectives. As found earlier, according to Ava, the Provost Office always tries to look for the good examples of innovative teaching and share these stories with other members of the university:

> The Provost Office has flashed a spotlight faculty who are brining innovations with technology in their teaching in different ways. This highlighting makes faculty feel rewarded and supported.

Many of the featured faculty members in the report series are the participants of the TTF. Ava describes the TTF was "such a huge success." Moreover, many of the TTF faculty members not only have presented at the workshops and talks co-sponsored by the CTL and UW-IT, but also have facilitated learning communities, committed to research on innovative teaching, and received the Distinguished Teaching Award for Innovation with Technology.

Chapter 5

Discussion and Conclusions

In this section, the findings are discussed with respect to the main research questions of this study. The main research questions concern: 1) the perception and visions of the leadership upon learning technologies; 2) the system of support for faculty in order to encourage technology integration in teaching; and 3) the measurement of implementation and effectiveness of the support system. In this concluding chapter, I discuss several main messages found in the study's results, review the limitations of the study, and consider implications for policy and future research.

Main Messages in the Findings

The results of the study underscore several important messages concerning what it means —from a leadership perspective—to launch and sustain a technology integration initiative, such as the ones at the University of Washington under study here. In particular, these messages are about (1) technology comes after pedagogy, not the other way around; (2) how faculty learning must be at the center of these initiatives; (3) the role of rewards in motivating and supporting faculty; and (4) the kinds of collaboration that seem to be helpful in making the initiative work.

Technology Should Come after Pedagogy

The visions for teaching and learning in the 21st century incorporate innovative teaching practices with technology—blended learning, online learning, MOOC, and active learning strategies. The leadership perceives that the integration of learning technologies is one of the

core components of innovative teaching in the university. The leadership believes that renovating the university's traditional courses to become blended learning and online learning can help the university to overcome the challenges with the budget cuts as well as become more sustainable without extra money.

At the same time, they have made a great effort to ensure that these renovated teaching practices are not only technology integrated, but also more effective in improving the quality of faculty's teaching and students' learning performances. In this sense of effectiveness in teaching quality, the leadership conceives that learning technologies can be any technological tools and resources that help faculty and instructors achieve the learning goals on the one hand. In the same context, the leadership also emphasizes the application of proper pedagogies, such as active learning and flipped classroom, for more effective teaching with technology. On the other hand, the leadership has piloted and implemented the university-supported ICT tools and cloud-based services. These large—university-wide implemented—technologies are part of the institutional investment in the integrated platforms—integration of various instructional activities such as grading, assignments, quiz, discussions, and etc.—to encourage instructors to efficiently move traditional instructional activities to online. In addition, the leadership has acknowledged the issues around intellectual property of resources moved to and stored in the online systems.

Faculty Learning

Faculty learning programs, including workshops, conferences, talks, trainings, and other resources, are core component of the support system. Particularly, the Technology Teaching Fellows (TTF), which was co-sponsored by the CTL, UW-IT, and the Provost office and funded by the outside donor, seems to have significantly influenced the other part of the support system

61

and success of the implementation. The participant faculty in the TTF not only have integrated learning technologies in teaching, re-designed their courses, and taught in the ALC's in regards to their own teaching practice, but also have inspired other faculty members and therefore contributed to promoting the innovative teaching for the whole university community: they have facilitated conversations and meetings regarding of learning technologies, presented their scholarship upon teaching and learning, shared their experiences through different media, and received the institutional teaching awards for innovation with technology. As found earlier, faculty prefer technology training that successfully integrates their pedagogy, not technology training that simply reveals how the instructional technology tools work (Georgina & Olson, 2008). The UW's case shows that their TTF workshops in the ALC's, incorporating active learning pedagogy and technology together, promoted instructional changes. Also, putting emphasis on pedagogy is found as a significant factor for faculty learning programs to be meaningful and effective, in that they produce the "deep understanding" of technology-integrated teaching practice (Mishra & Koehler, 2006).

Rewards for Good Practice

Another important finding of the study is how the leadership endeavors to reward faculty on good practice in innovative teaching in order to encourage and motivate faculty. The leadership has rewarded a number of faculty members by flashing spotlight on them, introducing their stories on the institutional report series, and awarding them. Even though there are challenges—faculty's concerns on time, motivation, and research as well as departmental culture in regards to promotion and tenure, of which policy the leadership can't control—, the leadership has looked for alternative ways to confer benefits for faculty on their good practice. Furthermore,

the leadership also has considered ways to provide safe environment—such as exemption from course evaluations—for faculty to make experimental attempts to improve the quality of teaching, without getting punishment on trying new strategies.

Collaboration

Collaborative work between the leadership departments as well as faculty members has played a significant role in the implementation of the initiatives. Under the initiatives, the technology department and pedagogy department—UW-IT and the CTL—have closely worked together in order to create and maintain the support system for faculty. At the same time, the Provost Office has brought these two departments together and supported their partnership as well as faculty learning programs. Some faculty members themselves also contributed to the support system for faculty by serving as committee members, trainers, presenters, facilitators, or researchers. As found in the literature review in chapter 2, strong collaboration between the institutional leadership as well as between the leadership and faculty is the key to successful implementation of technology (Garrison & Vaughan, 2002; Georgina & Olson, 2008; Ertmer, 2005). In particular, collaborative leadership that embraces the feedback and ideas from the faculty members in order to maintain and improve the support system fosters a sense of ownership of the initiatives among faculty members (Georgina & Olson, 2008; Ertmer, 2005). For instance, in the UW's case, faculty members have participated in the decision-making processes as the committee members, facilitated faculty learning programs as the facilitators, trainers, or presenters, and provided resources for other faculty in the university's community.

Limitations

63

Although this study examines the factors that have influenced the effectiveness of the support system for faculty and the impact of the implementation of the initiatives, these findings are drawn from only one side, the service provider—the administrations of the leadership at the university. This study doesn't investigate the perspectives of the service clients, who are the subject of changes—faculty instructors. Even though the leadership asserts that the implementation has been effective and there are a number of faculty members who have successfully adopted and integrated learning technologies in their teaching practice, these faculty are not large part of the whole community. In addition, the interview participants of this study admit that it is very difficult to track participants of faculty learning programs and measure the impact and changes in their practice, because the changes could have been caused or influenced by other factors than the learning programs. Furthermore, this study is only focused on the perspectives of the leadership who are more likely to favor the use of learning technologies and already interested in the impact of learning technologies. In this sense, more comprehensive evaluation of the success of these initiatives should incorporate and investigate more of faculty's perspectives on the support system. Even though some faculty had participated in the faculty learning programs, it is uncertain whether their practice has been changed or not, and even if changed, it is unclear whether the change has been made because of the learning programs or other factors. In order to measure the impact of the implementation, therefore, it may be more reasonable to listen to more stories not only from the faculty members who have experienced the support system, but also from faculty members who have not used any of the support system.

Discussion

Because the main focus of this research is the perspectives of the leadership, the findings regarding of the evaluation of successful implementation are primarily based on what the administrators have described and published as a result of the implementation. Therefore, it is possible to doubt whether the findings are not only independent from what the administrators just want to tell to make the initiatives look good, but also reliable as evidences of successful implementation. However, the ways that the administrators have evaluated the implementation incorporate the feedback from faculty instructors as well as students in order to measure the impact. For instance, the administrators piloted new learning technologies, including Canvas, before disseminating them across the whole university, as well as conducted surveys after adopting the new technologies. The Canvas pilot studies had involved 28 courses with 22 instructors, which covered small lectures, large lectures, small discussions, large discussions, co-teaching with teaching assistants, online courses, and blended courses. The survey results of the Canvas pilot study showed that students' performance was increased. Also, instructors' were satisfied with the features of Canvas and indicated it was easy to use and efficient, and particularly innovative for flipped classroom. Likewise, the administrators have constantly carried out formal evaluations to measure the impact and collected feedbacks from faculty users, and therefore the leadership administrators' ideas and descriptions upon the successful implementation and impact are likely to be based on these evidences, not just from their personal assertions.

Some other aspects that may need to be included in the discussion of the leadership are the roles of different layers of the leadership. In this study, the leadership mainly refers to the central leadership and administration of the university. However, many higher education

institutions in the US, including the University of Washington, have a distributed—or decentralized—leadership system where individual departments and their departmental leaders hold controlling powers over course curriculums, faculty promotion, and budgets. Therefore, centrally-initiated initiatives for instructional innovation supported by learning technologies are likely to be mediated through the departmental leadership.

On the one hand, despite the central administrative people's endeavor to promote innovation in teaching, it is possible that the mediation of the departmental leadership might diminish or obscure the central administrative promotions and encouragements. For instance, one interview participant provided an example of a young faculty member, who teaches in such an innovative way but conceals her teaching from other faculty members in the department because the departmental culture of teaching significantly prefers and values a traditional lecture model of teaching rather than active learning model, where students speak more than the instructor.

On the other hand, however, it is also possible that there are departmental supports and resources for instructional innovations and adoption of learning technologies. Some departments at the UW have invested their departmental budgets to purchase technological tools—which include from their own LMS to 3D printers—and provide resident technological support experts. For example, one department has invested in learning online tools and training their instructors in order to build their entire degree program available as an online program. As another example, the recent distinguished teaching award for innovation with technology was awarded to a team of faculty members from one department, which implies that the departmental leadership was supportive for bringing innovations and making changes in their courses.

Policy Implications and Future Research

66

The findings of this study—understanding the visions, roles, and support system of the leadership with respect to the initiatives for teaching and learning with technology at a major public university—may provide other postsecondary institutions and their leadership practitioners with comprehensive insights upon how to effectively support faculty for technology integration in teaching. Because the UW case—the implementation of the teaching and learning initiatives—is considered as such a successful case to the leadership, moreover, the findings of this study may guide other institutional leaders and higher education researchers towards more effective support system for faculty and technology integration in teaching. The UW case might serve as a benchmark in planning and designing implementation of initiatives that incorporate learning technologies for teaching and learning in higher education. In this study, the detailed descriptions of the UW's support system offer an example of an apparently effective initiative for promoting change in teaching practice and adoption of new learning technologies. Especially, the UW's reward system for faculty—through spotlighting and rewarding good practice—might be a good example for institutions that want to provide incentives for faculty without making extra expense. Because the UW's initiatives aim to build a sustainable system of teaching and learning that overcomes the budget cuts from the government, this case study could be especially interesting for other institutions that are undergoing some similar situations.

Also, this study may be particularly helpful for other institutions that considers of or is in the process of implementing integrated learning management system, such as Canvas. Because implementing a campus-wide learning management system (LMS) is often such an expensive purchase or investment for many institutions, institutional leaders and administrators may seek visible evidences of successful implementation and good examples of adoption in teaching and learning. Moreover, because the University of Washington is one of the major public universities

in the US, developers and vendors of LMS's may be able to look at and refer to the UW's case in order to improve their products. This is actually true for the UW's case that outside stakeholders and vendor companies have asked for ideas to improve certain technological tools, such as e-textbook—of which pilot study's result showed that the students still used hard copies and printed books so that the UW administrators decided not to implement the technology.

However, this study did not provide more diverse perspectives in regards to technology integration in teaching and learning. Therefore, it sounds reasonable to examine faculty perspectives upon innovative teaching and learning technologies as well as the impact of the support system on their perceptions about innovative teaching and learning technologies. Additionally, qualitative research might be suggested to investigate faculty members who are still skeptical with technology integration in teaching and who believe traditional teaching models—lectures—are more efficient and effective than other pedagogies. Another important perspective that needs to be examined might be that of departmental leadership in regards to integration of learning technologies and innovating teaching practice. Because faculty members are influenced more directly by the departmental leadership than the central administrative leadership, it may be appropriate to understand how the departmental leadership conceives of learning technologies as well as what relationships the leadership has with faculty's perception upon teaching with learning technologies.

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