

THE CURRENT STATE OF PROFESSIONAL DEVELOPMENT FOR HIGHER  
EDUCATION FACULTY: AN EXAMINATION OF FOUR-YEAR, STATE  
SUPPORTED UNIVERSITIES IN TEXAS

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This mixed methods study examined professional development for higher education faculty members at four-year, state supported universities in Texas and the perceptions of professional development leaders at these institutions. The quantitative data was generated through an electronic survey aligned to the second iteration of the technology acceptance model while the qualitative data was generated through semi structured interviews with those that participated with the survey. Univariate analysis was performed on the survey data and the qualitative data was categorized using pattern coding. Limitations and future recommendations were also discussed.

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## CHAPTER 1

### INTRODUCTION

#### Problem

As higher education faculties' roles have changed, so too has professional development (PD) to meet their needs. Sorcinelli, Austin, Eddy, and Beach (2005) posit there has been an evolution of higher education faculty PD. They divide this movement into five discrete ages--the age of the scholar (1950s-early 60s), the age of the teacher (1960s-1970s), the age of the developer (1980s), the age of the learner (1990s) and the current age of the network—a catchall term for the myriad services and overall infrastructure that meet higher education faculty PD needs. While this evolution may not have occurred at every institution, some level of change has certainly occurred with time. Also, virtually all college campuses have instituted some level of PD services to assist their faculty. These services provide a variety of approaches from campus-wide centers, to multi-campus, cooperative programs, special purpose centers, and even development components that are often part of an existing academic program, such as a dean's office or a specified committee (Wright, 2002, p. 26). While there is little question that PD services are certainly available for today's faculty member, there is little by way of consistency or uniformity in the delivery and offerings presented. PD for higher education faculty can vary in execution from state to state, or even campus-to-campus within a state.

This lack of uniformity in the PD of higher education faculty members can be seen in Texas. Unlike Texas K-12 teachers who must meet mandatory minimums for PD contact hours due to the requirements of their state mandated licensure. Research

supports the concept that the efforts of attaining and maintaining such licensure at the K-12 level demonstrate higher rates of teacher efficacy and retention (Darling-Hammond & Youngs, 2002). Higher education faculty have no equivalent licensure requirements. Accordingly, their PD requirements can vary wildly. Some two-year institutions mandate minimum levels of PD. Most universities do not. Some colleges or departments within universities may have certain PD requirements unique to them, requiring faculty to attend PD sessions or meet certain minimums, while others within the same institution have no such requirement. Because of the disparate structure and support of PD and the way it is facilitated at various higher education institutions in Texas, research is needed to gauge what is being done across the state.

More specifically with regards to technology, the 2017 NMC [New Media Consortium] *Horizon Report* (Becker et al., 2018) notes several challenges impeding the adoption of learning technologies in higher education as related to PD for faculty. The report acknowledges the issues of managing knowledge obsolescence and rethinking the roles of educators. Managing knowledge obsolescence involves supporting faculty in the use of purchased technology and developing plans around rollout, support, and maintenance of these technologies. When faculty rethink their roles as educators, they are expected to use various technology-based tools in an effort to promote student-centered learning approaches, and as such, need support for this shift in thinking—with research and publishing being viewed as less important than teaching by institution administrators as noted in the report. This push to consider the complex roles of faculty is continued in the 2018 NMC *Horizon Report* (Becker et al., 2018). We should then ask, what is being done to support the PD needs of faculty in Texas and prepare them

in the effective use of the new and existing learning technologies purchased by these institutions? What administrative bodies are present to support their PD needs, and are faculty engaging with the services that are provided for them?

### Purpose of the Study

The purpose of the study is to determine through a mixed methods research approach the state of higher education faculty PD in Texas in preparing faculty in the effective use of learning technologies available on their campus. Because of the size of Texas and the breadth of institutions of higher learning available in the state, this research will focus on a specific segment of the population to increase the feasibility in carrying out the research study in a timely manner. The primary stakeholders responsible for faculty PD at four-year, state-supported universities in Texas will be the focus population of this study.

Since the systems of delivery and support are not uniform in their creation, mission, and execution of PD for faculty members, this study would be beneficial in helping to identify any underlying or nascent trends across the state of Texas. It would also help more concretely identify any deficiencies in the delivery and facilitation of PD by the departments charged with this responsibility. This research involves an extensive document review in conjunction with quantitative survey data generated through targeted surveys of leaders of centers for teaching and learning (or other departments or major stakeholders tasked with providing PD to faculty members). It also utilizes semi-structured interviews of those who participated in the electronic survey.

## Relevant Theories

### Technology Acceptance Model

The second iteration of the technology acceptance model (TAM2) is used to examine this population's perception of faculty interaction with and adoption of these learning technologies supported by the institution. Since its introduction, the TAM has evolved to become a valuable model in "understanding predictors of human behavior toward potential acceptance or rejection" of a technology by a user (Marangunić & Granić, 2015, p. 81). While the TAM is concerned with the user's perceived usefulness of the technology, as well as the perceived ease of use of the technology, the TAM2 adds additional key factors of the TAM's perceived usefulness and intended use, "to understand how the effects of these determinant change with increasing user experience over time," with the targeted technology (Venkatesh & Davis, 2000, p. 187). Also, this revised model was chosen due to its addition of, "theoretical constructs spanning social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use)" (Venkatesh & Davis, 2000, p. 187). Venkatesh and Davis' inclusion of Fishbein and Ajzen's (1975) subjective norm (someone's perception that people we view to be important think we should or should not perform a behavior), in particular, could be a compelling factor in faculty adoption of learning technologies.

It should be noted too, that the TAM is typically leveraged in research instances where the technology user is being researched directly, but in this instance the research will gauge the perceptions of those responsible for providing PD for the learning technology rather than those expected to use it. During review of the current literature,

the use of the TAM2 as secondary evidence of the primary targets of PD (i.e., university faculty) was not observed in other studies.

### Adult Learning Theory

Adult learning theory plays a prevalent role in the examination of this research population and was a guiding presence in the formation of the research questions (RQs). Foundationally, Mezirow's (1991) transformative learning theory (TLT) is a core adult learning theory that is widely accepted and boasts a healthy body of research. With the TLT, Mezirow (1991) posits that adults work within frames of reference, which form the assumptions by which they understand their experiences, and transformative learning is the process of implementing change upon those frames of reference. These frames of reference are transformed through critical reflection on these existing assumptions (Mezirow, 1997). Adults have a strong tendency to reject and label any idea as strange or an outlier that does not fit their personal preconceptions, and they tend, "when circumstances permit. . .[to]. . .move toward a frame of reference that is more inclusive, discriminating, self-reflective, and integrative of experience" (Mezirow, 1997, p. 5). The goal with adult education, according to Mezirow, is to encourage independent thinking in the learner and to help them become a better interpreter of their own experiences—a more cognizant judge of their own frames of references. University faculty while tasked with a variety of roles are, at their heart, adult working professionals who bring with them their own frames of references when it comes to their learning. Understanding how these frames of reference impact their learning is key when providing PD to these adult faculty learners.

It is also important to note that adult learning, while once looked at as the narrow cognitive process of the mind converting facts and information into knowledge, has broadened to a more holistic approach (Merriam, 2008). Research (while still ongoing) is showing adult learning to be a multidimensional affair involving the, “the body, the emotions, and the spirit as well as the mind” (Merriam, 2008, p. 95).

### Change Management Theory

It is not unreasonable to assume that this study could identify potential issue or areas of improvement with regards to providing PD to university faculty. As such, change management theory (CMT) should be leveraged to better understand the change that may need to be instituted to better support faculty at these institutions. Three foundational change management theories are examined, Kotter’s (2007) eight-step model couched around avoiding the pitfalls associated with the change process, Jick’s (1991) tactical level model to facilitate large scale organizational change, and General Electric’s (Garvin, 2003) seven-step model, which prioritizes the role of the organization’s leader and their ability to press for the needed change.

### Definitions

Operational definitions are based on the literature examined for the study.

- *Academic freedom*: This is a special protection extended to the higher education faculty member that allows the freedom to teach without fear of external control or reprisal in his or her own field or expertise, as well as the freedom of the student to learn (Altbach, 2001).

- *Adult learning theory*: Any theory concerned with the processes of how adults learn and facilitate knowledge (Yang, 2003).

- *Carnegie Classification of Institutions of Higher Learning*: A system of classifying universities and colleges for educational and research purposes created by the Carnegie Commission on Higher Education (Carnegie Foundation for the Advancement of Teaching, 2001).

- *Centers for teaching and learning*: Centers for teaching and learning (CTLs) exist in a variety of forms at many universities, and their mission statements can vary wildly dependent on leadership directives at the institution. The concept dates to the 1960's and these centers generally focus on improving faculty's teaching skills and helping them better understand student learning concepts (Schumann, Peters, & Olsen, 2013). The centers also typically support and promote the scholarship of teaching and learning.

- *Change management theory*: Any theory meant to help guide and implement large scale or major change in an organization (Mento, Jones, & Dirndorfer, 2002).

- *Effective use*: To be effective, something must produce the desired result. So, what then is the desired result of the effective use of learning technologies by higher education faculty? Ideally (for both students and faculty), the desired result would be better faculty produced instruction leading to higher student achievement of learning outcomes. Determining effective use will be closely tied to the implementation of the learning technology. Tennyson's (1997) fourth-generation instructional design systems model (see Appendix A) may be best suited to helping facilitate effective use.

Tennyson's model is focused on the reality of a person's action rather than abstract theory, and it maintains a focus on both situational and formative evaluation, as well as foundation issues that help those involved in creating the instruction make more

effective use of the technology involved (Spector, 2015). Though those involved may not be explicitly using Tennyson's model, what structures are in place with regards to incorporating technology into faculty instruction to produce the desired result?

- *Face-to-face instruction*: Traditional, synchronous instructional delivery model occurring live between student and teacher in a physical classroom setting.
- *Hybrid instruction*: Any teaching method involving a mixture of both online and face-to-face instruction.
- *Learning management system (LMM)*: Broadly, the learning management system (LMS) is a software platform that is responsible for the administration of training events (Hall, 2005). More specifically, these systems may contain a variety of tool sets (electronic tests, Web communication systems, electronic grades books) to facilitate learning and interaction between teacher, student, and instructional content.
- *Learning technologies*: In the broad application of the term, Spector's (2015) definition for educational technology most directly applies to defining learning technologies—"Educational technology involves the disciplined application of knowledge for the purpose of improving learning, instruction, and/or performance" (p.10). More specifically, for the purposes of this research study, the definition of learning technologies can be narrowed to any technology purchased and supported by a university for the express purpose of higher education student instruction in any modality—online, face-to-face, or hybrid. This can include, but may not be limited to, LMSs (Blackboard, Canvas, Moodle, etc.), video hosting solutions, content creation tools (SoftChalk or Adobe Captivate), or other technologies such as classroom clickers, online portfolio systems, and lecture capture systems. While faculty members may



purchase or leverage free tools and services for use in their instruction, such implementations are beyond the scope of the research study, as the researcher is only asking PD leaders to consider officially supported learning technologies on their campuses.

- *Online instruction*: Any instruction delivered solely through Web-based platforms such as LMSs.
- *Professional development (PD)*: Professional development is “a way in which practitioners can understand the need to change,” which “involves continual learning, whether formally or informally” (Nicholls, 2014, p. 10). With regards to this research study, professional development is the formal development and delivery of training materials by centers for teaching and learning (or major stakeholder at the university of study) to university faculty in the support of teaching, learning, research, and other scholarly activities, as well as faculty’s participation in such activities.
- *Research One University*: This is a doctoral degree-granting university that is rated as having very high research activity by the Carnegie Classification of Institutions of Higher Education (Carnegie Foundation for the Advancement of Teaching, 2001).
- *Technology acceptance model*: A model that helps predict end-user technology system use. The technology acceptance model was first proposed by Davis in his 1986 doctoral thesis (Legris, Ingham, & Collette, 2003).

## Methodology

This research leveraged a mixed methods approach, utilizing a descriptive sequential design. First, quantitative survey data were collected from stakeholders in charge of providing PD to higher education faculty at four-year state institutions in

Texas. Qualitative data were then collected through semi-structured interviews with members of the same population in an effort to provide a full narrative of what is currently being performed at these institutions with regards to professional development and preparing higher education faculty in the use of institution supported learning technologies in their instruction.

Considering Mezirow's (1991) TLT where adults learn through their own past frames of reference, the questions were formulated to help gauge how these PD leaders see the learners for which they are tasked with providing support. How do they see their own PD structures? Are the PD structures at their university conducive to adult learning and are faculty engaged with them? Are these structures successful in getting these adult learners to accept the learning technologies purchased for them? The following RQs are posed:

1. What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty?
2. To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution?
3. To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions?

### Significance of the Study

While this research study is more descriptive in nature, hoping to establish a baseline of PD systems, as well as methods in use to prepare faculty in effective use of learning technologies purchased by a university, it is not unjustified to consider the

change that could occur because of the findings. Based on the findings related to the RQs, a formal system of PD could be developed to be applied uniformly across institutions of higher learning in Texas. The research could also help illustrate any nascent trends in the deployment, function, and scope of CTLs at four-year, public Texas universities—lending guidance for future CTLs development and mission directives.

Chapter 2 is a review of the current literature of PD in higher education. The history and background of and various approaches to PD in higher education is discussed. The form, function, and history of CTLs are detailed. Teaching with technology is also investigated. The guiding theories (TLT and CMT) are detailed providing the structure for the theoretical framework of the research study.

## CHAPTER 2

### LITERATURE REVIEW

#### Introduction

During the 1960s and 70s the role of the higher education faculty member went through a reimagining—where the previous metric of success was research and publication, a more holistic view of the faculty member began to take shape, one that also valued teaching and service responsibilities (Ouellett, 2010). With this evolution came a need for faculty to receive professional development (PD) to assist with their new mantle. Indeed, over the last 25 years there has been tremendous growth in the field of higher education faculty PD, with training for graduate teaching assistants increasing, the number of PD centers growing, and a general race towards improving student learning experiences, increasing rates of completion, and effectively measuring student achievement levels (Condon, Iverson, Manduca, Rutz, & Willett, 2016).

This acceleration has led Carpenter, Sweet, and Blythe (2016) to note that we have passed Sorcinelli et al.'s age of the network, to enter a sixth age, the Age of Innovation. As a result of the growth in PD and the many changes in technology, we need creative, collaborative, flexible entities to deliver innovative PD solutions to faculty (Carpenter et al., 2016). There is also a new place of prominence at many institutions for the scholarship of teaching and learning (SoTL). It is through the SoTL perspective that, “faculty realize that course design is an intellectual endeavor, that students are complex individuals from whom they can learn, and that teaching is an ongoing transformational journey to be shared” (Hodges, 2013, p. 72). The result of these

changes creates a need to review and update our understanding of PD and how PD also needs to change to maintain currency and relevance.

### Professional Development Approaches

There are a plethora of approaches involving the design and delivery of PD to faculty members—from ad hoc workshops to more informal learning communities, from dedicated centers for teaching and learning to peer groups organized casually—PD has some role or stakeholder on every campus. No matter the engagement, PD has some level of measurable impact on faculty teaching, with faculty often reporting learning gains aligned with the goals of the PD being offered (Condon et al., 2016). Ideally, faculty are lifelong learners whose teaching experiences are shaped by a diverse set of experiences and understand that, “the learning process does not cease at the completion of graduate school, and thus faculty will continue to learn about themselves, their discipline, and students throughout their careers” (Oleson & Hora, 2014, p. 42). To jumpstart this learning, there is a movement to initialize PD for graduate students prior to becoming faculty members. Heflinger and Doykos (2016) explore one such instance in a mixed methods study aimed at doctoral students’ perceptions of PD opportunities at a Research One university. They found 95% of the students felt prepared to become content experts in their field and were able to keep abreast of their field of study. Conversely, over one third felt unprepared for professional rigors such as leadership, grant writing, and negotiation. Half felt prepared to begin teaching post-graduation. To address such teaching deficiencies, some institutions offer instructional tutelage through actual courses rather than PD offered through a particular center, with graduate

students from various disciplines all engaging in pedagogically driven academic courses (O'Loughlin, Kearns, Sherwood-Laughlin, & Robinson, 2017).

Before PD can be targeted to best meet the needs of those becoming faculty members, the patterns of how they participate with PD should be identified. Shagrir (2013) identified three primary patterns through a content analysis of 24 interviews with faculty at two different institutions:

- Little or no involvement with PD—Faculty who consider PD to be unnecessary.
- Frequent involvement with PD—They are frequently invited and guided by someone else.
- Regularly and deeply involved with PD—PD is seen as something with which they should regularly interact and be a constant part of their job in higher education.

Shagrir (2013) cautions that faculty undergo different pursuits at different times in their academic lives. Faculty may move in and out of these patterns or the degree to which they subscribe to them. With the patterns identified, approaches to delivering PD can be developed. One of the most frequently cited patterns in the literature is that of collaboration.

Collaborative approaches are a popular means of delivering PD to faculty members. Sellheim and Weddle (2015) surveyed faculty over the use of a collaborative course reflection process meant to increase teaching skill and aid in curriculum development. All respondents found the PD program worthwhile and 90% found that it increased their teaching skill and helped in course development. Polanco-Bueno (2013) noted the collaborative elements as a major component in the positive perception of a teacher-training program taken by faculty at Universidad Del Valle de Mexico, where faculty valued most the work and feedback shared between peers and the program

leader. Knowlton, Fogleman, Reichsman, and de Oliveira (2015) report on a collaborative PD program between higher education faculty and K-12 teachers. Faculty from both education levels were paired to create technology enhanced learning materials from open source content. They contend that collaborative PD is vital because, “authentic faculty development efforts often revolve around fostering collegial relationships that provide participants with access to new perspectives and expertise” (Knowlton et al., 2015, p. 51). Another collaborative instance is noted in Gucciardi, Mach, and Mo’s (2016) study of student-faculty team teaching collaborations. Students and faculty were able to work in live instructional instances, and give real-time feedback from a variety of perspectives, with the students often acting as an intermediary between the faculty and the body of the class. Gast, Schildkamp, and van der Veen (2017) carry the theme of collaborative PD forward with a review of 18 articles where team-based PD was leveraged and the effects on teachers’ attitudes and learning analyzed. They note that while team-based approaches have been explored for quite some time in K-12, the practice is still relatively new in higher education. They found that team-based PD had a positive effect on teachers’ pedagogical knowledge and led to increased bouts of experimentation. Attitudes had to be dropped because the review study revealed that attitude change had not yet really been studied in the articles surveyed.

Applications of collaborative PD in the literature are as wide-ranging and diverse as the faculty who populate higher education, even the non-traditional. Research is also available involving these non-traditional faculty members and how they are being served PD. de Lima Ferreira and Bertotti (2016) present a qualitative research study

involving professionals working in their respective fields who then engage with continuing education courses meant to enable them with the instructional skills necessary to teach in higher education. The research spanned three years and 70 students. They found that professionals who engaged with the courses felt they received the pedagogical knowledge necessary to transform theory into practice. Learners also valued the ability to actually place theoretical knowledge into direct practice. In another example involving creating PD for non-traditional faculty, Banasik and Dean (2016) posit using cohort-based, learning communities in an effort to support non-tenure track faculty charged with teaching a large undergraduate population. While not a specific research instance, Banasik and Dean offer research backed recommendations for implementation, as well as a call for four-year institutions to follow the lead of two-year and community colleges in their PD initiatives.

Kerrick, Miller, and Ziegler (2015) stress that quality should be a top consideration no matter the population being served or the delivery method or type of PD. They offer a multi-year study leveraging continuous quality improvement as a method of maintaining successful PD for faculty. Their study focused on a system of PD for faculty in building and teaching an online course. This was a four-year, mixed-methods study meant to measure participant satisfaction. The data gathered from each year's survey was analyzed, the results of which directly went to addressing quality concerns and revising the program's delivery for each following year.

### Centers for Teaching and Learning

The primary drivers of faculty PD at most universities are centers for teaching and learning (CTLs). These centers exist under a variety of names in the research



literature, but all serve the same focus—to produce and deliver PD to faculty members. CTLs are not new to many institutions of higher learning. The concept dates back to the 1960's. CTLs are charged with improving teaching skills and helping faculty better understand student-learning concepts (Schumann et al., 2013). Though there has been growth in the number of CTLs since the 1960's, the financial support of such endeavors is under constant threat due to ever-shrinking budgets and other academic areas that have more pressing fiscal needs (Schoening & Oliver, 2016; Schumann et al., 2013). Ironically, this same threat of reduced funding that has closed or diminished the capacity of some CTLs on campuses, is also the primary reason they are needed, as publicly funded universities begin facing increasing accountability to show that their students are meeting the learning outcomes necessitated by accrediting bodies in order to maintain their funding levels (Schroeder, 2012).

By leveraging CTLs, faculty willing to engage with them can get some assistance with teaching related functions, like assessment. Skinner and Prager (2015) found their own center at University of Wyoming could, “play a pivotal role in promoting and supporting the implementation and sustainment of assessment programs while mediating the tension that can sometimes exist between faculty and administration” (p. 4). Here a specific need, assessment, was worked into workshops, as well as collaborative sessions for faculty, allowing the CTLs to add value to a process that was previously only shouldered by faculty members. This sense of collaboration is also noted by Schumann et al. (2013) as they look at fostering value by faculty in CTLs. One of their eight principles specifically address the notion of collaboration, stressing that CTLs should hire staff that have a strong belief in the value of collaboration because of

the back and forth needed between CTLs staff and faculty members. They also make mention of mentoring and its importance in building a quality Center for Teaching and Learning (CTL) staff. More experienced staff members can act as sounding boards and informational support for those with less experience. Mentoring is also a key tool for faculty and CLTs can assist in this regard by bringing, “together faculty and professional staff who otherwise would not spend time together engaging in reflective practice and shared activity” (Calderwood & Klaf, 2015, p. 6). There are a plethora of activities CLT can facilitate for faculty, adding value and support to their instructional endeavors. The services are generally as wide ranging and diverse as the faculty they are meant to serve.

CTLs have responded to this diversity, shifting in form to meet the needs of an evolving faculty demographic. As tenure-track salary lines are becoming less common and many universities are shifting towards contract and adjunct workforce, the traditional on-campus university professor is no longer the sole form of faculty. With the rise in online learning and completely online degree programs, some universities have embraced the at-a-distance professor model, no longer requiring that faculty member to be physically on a campus at all or only for a percentage of the working year. As such virtual CTLs have come into being. Schoening and Oliver (2016) discuss one such center at Creighton University, a private, Catholic university in the Midwest. Schoening and Oliver specifically cite the necessity of a virtual center due to the need to service many adjunct faculty who may have a limited presence on campus, as well as the cost associated with housing a center in a physical space when funding and space are at an absolute premium. Though pleased with its success, three challenges were mentioned

by Schoening and Oliver after the virtual center was installed and running for over a year. They noted the challenge of managing technology resources available at Creighton in order to implement new features, how best to leverage the analytical data gathered from those that visit the virtual center and staffing the virtual center through a mixture of volunteers and stipends.

Though Schoening and Oliver saw staffing as one of the more solvable issues they encountered, staffing of CTLs could have a significant impact at a university. Herman (2013) conducted a quantitative data study of CTLs by leveraging survey data from 191 CTLs from U.S.-based, nonprofit institutions that were classified according to Carnegie Basic Classification as institutions granting associate's, baccalaureate, master's, or doctoral degrees. The study was also limited to those CTLs that delivered PD primarily to actual faculty members not just teaching assistants. Herman leveraged Finks' (2005) multidimensional model for institutional effectiveness, which emphasizes the connection between an institution's support of its center and its academic success. Herman's study looked at the ratio of CTLs full-time equivalency (FTE) staff to FTE student enrollment and FTE faculty and found that private schools had better ratios than public. Associate's-granting institutions had the best ratio based on degree program, followed by baccalaureate, master's, and doctoral institutions being last. Herman notes that these ratios could be seen as an institution's commitment to teaching, which would validate the poor ratio found in doctoral institutions where the primary driver would be research rather than instruction.

Though staffing seems an easy fix, it is an expensive one, and funding is a top detriment to the growth of CTLs. Before such growth can be fostered, there is value in

evaluating CTLs to determine their effectiveness. Hines (2017) discusses a field-tested model (at nine different CTLs) for use in evaluating CTLs. Hines' model is divided into four phases:

1. Evaluation capacity analysis (how capable a CTL is to conduct program evaluation)
2. Curriculum conceptualization (the programs, outcomes, and objectives)
3. Evaluation planning (how a program will be evaluated, when, and who will collect the data; and when the data will be analyzed)
4. Plan implementation (putting the entire evaluation plan into effect)

Hines notes there are some drawbacks to the model that include, "the complexities of understanding evaluation terminology, managing competing priorities, working through the details of each phase, and communicating the work to others" (2017, 92). While they do not use Hines' model, Smith and Gadbury-Amyot (2014) performed a similarly structured formal evaluation (though one that focused more on the participants' response to the center and its place in the campus infrastructure) on a midsized, midwestern research institution's center. They found in their evaluation that the center was largely effective in its mission and faculty most valued its focus on teaching first, though some wished it was a more fully formed PD initiative, covering all aspects of faculty existence.

### Teaching with Technology

As technology becomes ever more present in education, its effects can be seen in both the faculty member's classroom and felt by the students they are expected to teach. With this transition to a more technology-focused instruction, it is expected that pedagogical practices should evolve and adopt these changes (Akbar, 2016). The

faculty member is to decide how much time and effort to invest in these technologies and what the potential impacts may be on student learning (Akbar, 2016). This inherent understanding of a technology's impact on their students is really the key to successfully implementing a new technology in higher education (Englund, Olofsson, & Price, 2017). Depending on the experience level of the faculty member, this understanding can vary greatly.

Performing a 10-year longitudinal study utilizing a phenomenographic approach and looking at how higher education faculty approached teaching and learning with technology, Englund et al. (2017) found clear differences between those new to the field as opposed to teaching veterans. They found those faculty with little experience were more malleable when it came to PD targeting teaching and technology. The novice faculty had little prior experience and relied on an initial teacher-centered approach, mirroring the same pedagogical techniques they experienced as students, but were able to change more readily to a student-centered approach than their more experienced colleagues. The veteran faculty were very grounded in their teacher-centered approach and the use of technology in teaching and exhibited little change. That is not to say such teaching populations cannot experience success.

Blakely (2015) conducted a phenomenological study focusing on late-career higher education faculty who were assumed to be resistant to pedagogical technology or have little exposure to technology training. The faculty studied had served the profession between 45-50 years each, had used a variety of technologies in the classroom, but found some, such as the learning management system (LMS), more difficult to use because the “gadget” became more important than the instruction.

Blakely's participants were all highly decorated faculty members with superior awards and teaching commendations. They did experience some successes in using technology in their classrooms, but it was not necessarily because of the PD delivered to them. Most found the PD focused on teaching with technology to be too tool-based, invested only in the mechanics of the tool, but not in leveraging the pedagogy that helped integrate the tool into their instruction. These were faculty that were motivated to leverage technology in their instruction and that motivation is a strong indicator of whether someone will want to engage with the technology as is its perceived usefulness (Wu, Hu, Gu, & Lim, 2016).

Mentoring is another PD strategy used in delivering technology knowhow to faculty members. Baran (2016a) used a mentoring model involving 12 faculty members who were the mentees and 12 graduate students who acted as technology mentors to the faculty. Using a naturalistic inquiry methodology, the research study was designed as a single case study to examine the mentorship program, involving a large public university over the course of one semester. Both the graduate students and the faculty members found the relationship beneficial. Students were able to work with faculty members across disciplines, as well as hone their own pedagogical technology skills. Faculty received PD that was more directly integrated into an actual instructional instance rather than existing within a workshop environment, isolated from the actual classroom (Baran, 2016b). Baran emphasizes that the nontraditional mentoring program provides a flexibility of application that is not possible in more traditional, one-size-fits-all approaches.

Though some universities have embraced a traditional workshop model, Dysart and Weckerle (2015) observe that these approaches often fail to properly correlate the relationship between technology and pedagogy, and they instead call for a more holistic approach, noting that “workshops should provide meaningful and relevant activities in a contextualized environment” (p. 256). They developed a conceptual PD model for integrating technology into instruction, one that addresses what they note as the three phases of teaching: (a) While designing instruction, (b) while teaching a course, and (c) while reflecting upon and improving practices post-teaching. Dysart and Weckerle call for the use of three research-based practices that involve integrating technology into instruction that also align with their three phases of teaching: (a) Learning by Design (design actual courses or materials aided by course designers), (b) Peer Coaching (ongoing support from a field-experienced, subject-matter-teaching peer), and (c) Communities of Practice (engaging with a larger, less formal community of fellow faculty who use technology in their instruction). Dysart and Weckerle note that these techniques have been used to great effect in K-12 for years and may hold some value for application in higher education.

### Adult Learning Theory

Since the population of learners that CTLs work with is comprised of working adults, it is only natural that this research be grounded in a theoretical foundation built on specific adult learning theories. Mezirow’s (1997) widely accepted transformative learning theory (TLT) provides the core theoretical structure for this research study. While andragogy does involve some elements of self-directed learning, it is more directly concerned with the personal attributes of adult learners rather than those of

children. TLT is more about the actual cognitive process of learning (Merriam, 2008). TLT theory posits that adults work within frames of reference, which in turn form the assumptions by which they understand their experiences. TLT is the process of implementing change upon those frames of reference, transforming them through critical reflection on these existing assumptions. TLT is looked at as a uniquely adult learning process as it relies upon prior interpretation of past experiences to help guide future learning and make sense of our experiences in the world (Taylor, 2017). At the heart of this interpretation process is disjuncture, which allows a learner to reactivate the questioning or discovery process should their existing knowledgebase be insufficient (Jarvis, 2004).

### Change Management Theory

Along with TLT, CMT is used to complete the theoretical framework of this research study as it can help provide guidance in understanding how CTLs function within a university's ecosystem and provide a path forward for managing or planning any potential change that may be needed. Any organization (like a CTL with a university or a specific university within a larger school system) is an interrelated system of components that are nested within (and usually influenced by) a larger system and the key to maintaining the health of such systems is the quality of the alignment between the internal parts of the system and the components of the larger organization of which it is a part (Hayes, 2018). Effective change is enacted through leadership in these systems by those that enact change with the goal in mind of improving internal and external alignment (Hayes, 2018). These leaders institute effective change processes



that work to mold and define good ideas, while building capacity and ownership among the system's participants (Fullan, 2015).

## Models of Change Management

These CTLs and the universities in which they exist are organizations, and as such they can be influenced through change. CMT can provide a path forward for these entities as they look to better institute PD on their campuses for their faculty. Three primary models of change management are examined here, Kotter's (2007) eight-step model built for avoiding those pitfalls associated with instituting change, Jick's (1991) tactical level model used to facilitate large scale organizational change, and General Electric's (Garvin, 2003) seven-step model, which emphasizes the organization's or system's leader and their ability to institute the needed change.

Kotter's (2007) model is broken into eight core components, which he couches in terms of errors made by those charged with implementing a desired change in an organization. Kotter first lists a lack of urgency instilled in the institution. In this error the change agent may underestimate just how comfortable those in the organization are with the current norm or how successful they have been in ushering in a sense of urgency at the start of the change process. Kotter's also discusses the failure of leaders of change to form a powerful guiding coalition. It is not enough to have a strong leader of change, but an organization must have a group of change agents peppered throughout, all leading the charge of a shared vision of change. Kotter then notes the issue of having insufficient vision for the scope of change. While the initial vision may come from a single individual, it is up the guiding coalition to flesh and form the vision and support it with a strategy in order for it to be achieved. Leaders of change also fail

to properly communicate their vision. Every possible channel of communication should be used to effectively communicate the vision, especially those channels targeted at nonessential information—organization newsletters, standard professional development sessions, informational email updates, etc. Another issue is the failure to remove obstacles to the vision. While not all obstacles may be removed, the big ones must be in order to maintain the momentum and credibility of the change effort. Sometimes leaders of change fail to facilitate short-term wins. Kotter contends that instituting real change is a long-term endeavor, and having the organization achieve short-term wins during the longer journey is a crucial part of successful change. Without short-term wins the change effort will likely lose momentum and face failure. Often success is seen as a given and announced too soon. Change is typically more glacial in pace rather than a rapid instance, sometimes taking years to fully manifest. Announcing success before change has fully taken hold can regress or retard the process. Also, change cannot last if it is not anchored in the organization's culture. Change can fade and behavior can regress if the pressure for change is removed too soon. Those in the organization must know that their performance has improved due to the implemented change, and they should see those leading the organization also embody the new approaches.

Jick's (1991) theory acknowledges that while leaders of change call for a checklist to help guide their change efforts, most change does not follow such a simple pattern. Typically, there is no one certain path or model to effective change. Jick also notes that when, "it comes to the daily, nitty-gritty, tactical and operational decision-making of change, the implementer is the one who makes or breaks the program's success" (1991, p. 1). Even so, Jick provides leaders of change with a list, what he

notes is a 10 commandments of sorts. Leaders are to view the list as ingredients in a recipe, one that will differ as per the organization implementing the change. Just as flour, sugar, eggs, and milk make a cake, so too can it make cookies, bread, and all manner of baked goods that vary in size, shape, texture, and flavor. Jick is cautioning that it is up to the leader of change to determine the proper order and ratio of the commandments he provides. The leader of change should conduct an analysis of the organization, asking questions such as, “What need does it have for change” and “What is its history of change?” They should also construct a vision and plan a direction to provide a central vision to help guide behavior. There should be a clear separation from the organization’s past. Without a demarcation from the organization’s past, it will be difficult to implement a new vision. That is not to say all elements of an organization’s past should be forgotten. Keep those that reinforce the needed change and eliminate those that hinder it. Leaders of change should foster urgency. Urgency helps the organization rally around the change. They must also install and support strong leadership. Leadership is responsible for creating and honing a vision, which will guide the change. Also, leadership is often comprised of a plurality and not a single entity. Support should be secured within the organization by effectively broadcasting the vision throughout the organization to key stakeholders. An implementation plan for the change should be created. This is a simple, basic plotting of what exactly the organization is to do in order to effectively implement the change. Leaders of change should create or facilitate support structures. These structures may be pre-existing within the organization or newly developed entities—training instances, reward systems, etc. They must also be honest in their communication and involve those in the organization. To

secure the trust of those in the organization they will need to communicate as openly as possible with those involved with the change. Communication should not just be comprised of directives but be an actual dialogue between those planning and those executing the change. The change should be normalized. Leaders of change will need to reinforce the change in the organization by showing commitment to the new culture and emphasize to those in the organization that the change is an institutional habit.

General Electric's Change Acceleration Process (CAP) launched in 1992 by CEO Jack Welch at General Electric's internal training center at Crotonville, NY (Garvin, 2003). CAP is founded on a common sense, nuts-and-bolts approach that Welch equated to an airplane pilot's checklist—a tool of discipline—used to make sure that all necessary steps are followed yet does not introduce any new information. CAP is centered on a seven-step process. Install a leader of change. This person should head the needed change and be willing to own it and dedicate their time to it. This leader of change should foster shared need by making sure that all members of the organization understand the reason for the instituted change. They will also shape a vision by placing the change outcome in concrete behavioral terms for members of the organization. The leader of change will need to initiate commitment from the organization. This is done by facilitating and supporting a group of change supporters. They should also affect lasting change by developing long-term plans. They will also monitor and measure the organizations progress by creating benchmark success indicators to help track progress for the instituted change. Finally, they need to change organization structures and systems. By altering existing core structures, they can complement and support the instituted change.

## Why Change Fails

Though at its core, change is a systemic entity, effective change is not enacted by a system, but rather, the individuals that comprise the system (Hayes, 2018). Yet, the individual is not the place where change should first be initiated. Many change efforts wrongly focus on changing the attitudes of the individual in the hopes that enough changed individuals will thereby instill real and lasting change (Beer, Eisenstat, & Spector, 1990). In actuality, the individual is shaped by the organization, and the most effective way to promote change is to place the individuals into a new organizational context (Beer et al., 1990). Individuals, too, are biased towards their own assumptions about an organization pre and post-change, and these assumptions shape the way individuals see themselves and their place in the organization and the larger world (Kegan & Lahey, 2001). The models discussed here are organizationally focused with the intent of affecting change from the top of the system down to the individual. While the change models discussed largely originate in the business world, they can still readily apply to academe.

## Conclusion

The landscape of professional development (PD) for higher education faculty is ever-changing, as evidenced by the variety of PD approaches seen in the literature, the growth of CTLs, and the push for and legitimization of the Scholarship of Teaching and Learning (SoTL) in higher education. CTLs are a prime facilitator of faculty PD, a driver for adult learning, and a conduit for SoTL. As such CTLs act as agents of change for PD, overseeing and charting its general direction. For CTLs to be successful, they will need to be grounded in the principles of adult learning to maximize the impact and best

serve faculty and meet their PD needs. To promote a wide implementation and thorough integration of PD and entities like CTLs, it will take considerable effort and a thorough understanding of the change management required for such a shift.

Chapter 3 details the criteria for participants in the research study, as well as an accounting of the participants who met the criteria. The research design is discussed, and a full accounting of the research instrumentation provided. The procedures followed in the research study are discussed as are the data analysis techniques used. Limitations of the research study are also discussed.

## CHAPTER 3

### STUDY INTRODUCTION

The purpose of this mixed methods study is to establish a baseline of the professional development (PD) conditions and conventions present at public, four-year universities in the state of Texas, particularly with regards to the use of learning technologies in faculty instruction. By establishing the baseline, gaps can be identified and suggestions for improvement provided. Unlike PD at the K-12 level, which is fairly uniform in its application and acts in direct support of maintaining a professional teaching license within a district or a state, PD for higher education faculty in Texas exists quite differently. It enjoys little of the same infrastructure, support, and uniformity. It is important to determine just what is currently being done in higher education faculty PD, what structures are in place to support PD for faculty, and what is being done to prepare faculty to leverage the learning technologies on their requisite campuses.

The technology acceptance model 2 (TAM2) was used as the framework for the quantitative survey (Venkatesh & Davis, 2000). The TAM2 was leveraged due to its consideration of the user's perceived usefulness of the technology, as well as the intended usage of the technology in terms of one's social influences (subjective norms, voluntariness, image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, PEU) (Venkatesh & Davis, 2000). While most instances of the TAM2 directly gauge the perceptions of the end-user of a particular technology, here the researcher has used the TAM2 to gather secondary evidence. The researcher is attempting to gauge the perceptions of these leaders of CTLs of the technical abilities of their faculty members and the adoption of the offered technologies by the faculty they

are charged with serving. At its core, this research instance is about the perceptions of those PD leaders about the faculty for which they must plan and implement training. The quantitative component combined with qualitative semi-structured interviews with those who participated in the electronic surveys allowed for a more fully developed narrative regarding PD at these institutions.

### Criteria for Institutions of Study

All institutions in Texas that met the following criteria were asked to participate in the study:

1. Be a four-year, state-funded institution of higher learning in Texas.
2. Have a center for teaching and learning, or similar administrative department charged with design, promotion, and delivery of PD to faculty members.
3. Utilize learning technologies for faculty use in the classroom (online or face-to-face) instruction.
4. Grant both undergraduate and graduate degrees.
5. Membership in a state university system is not necessary. The four independent public universities in Texas will be included.

### Participants

Because of the sheer number and varied types of institutions of higher learning in Texas (private, public, four-year, two-year, technical schools), this research is limited to four-year, state-supported colleges and universities. Ultimately, 22 universities participated in the research study.

Thirty-five institutions met the study specifications. Each of the state supported four-year college systems were represented (University of Houston System, University of North Texas System, University of Texas System, Texas A&M University System,



Texas State University System, and Texas Tech University System, as well as the four independent four-year public universities in the state—Midwestern State, Stephen F. Austin, Texas Southern, and Texas Woman’s University). Leadership working in faculty professional development on each campus were requested to participate in the research. It is important to note, that while most of the research population has some office that either functioned as a center or closely approximated the duties of a CTL office, two universities lacked either a dedicated office or any level of administrative support (from either a dedicated staff member, faculty member, or oversight committee) for faculty PD. Since no primary stakeholder from these two universities could be identified or was willing to engage with the electronic survey, both were excluded from participation. This left a total of 33 universities that were asked to participate in the research study. Twenty-six PD leaders from 22 universities took the electronic survey

Of those PD leaders who participated in the electronic survey, four agreed to an interview. All interview participants had a minimum of five years of experience in PD design and delivery at their respective campus. Three held PhDs in the disciplines of learning technologies, comparative literature, and curriculum and instruction and were engaged in current research in the scholarship of teaching and learning. Pseudonyms were used in lieu of actual names for the sake of confidentiality. The Pseudonyms and interview participant particulars are detailed in Chapter 4.

### Research Design

This research study leverages a mixed-method approach that is descriptive in nature, intending to illustrate the established PD support systems at four-year public universities in Texas. Mixed methods research allows us to explore the relationships

between the variables present in the quantitative survey instrument and perhaps clarify and explain these relationships (Fraenkel, Wallen, & Hyun, 2011). While mixed methods research is often seen as a time consuming and costly endeavor, it is ultimately the research methodology that is best suited to building a big picture narrative—one where neither a deep analysis of qualitative data or a multivariate analysis of quantitative data is needed (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007).

### Research Questions

1. What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state-supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty? (Perceptions were measured through qualitative interview responses.)
2. To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution? (Leaders' perceptions of faculty willingness to accept new learning technologies was measured through specific factors in the TAM2 aligned survey instrument. Perceptions of willingness are further illustrated through qualitative interview responses.)
3. To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions? (Leaders' perceptions of faculty preparation were measured through qualitative interview responses.)

### Instrumentation

Finding an appropriate, validated survey instrument was a challenge for this study due to the nature of the research population. A thorough search showed no validated instrument built around the TAM2 for higher education faculty PD. While most instances of the TAM2 involve the direct query of end-users of a particular technology, this research is built upon the perception of those providing PD and support to end-users of

the technology. Park's (2009) existing survey containing 18 questions aligned to the TAM2 was located and subsequently adapted with the author's permission. The TAM2 is built along several primary constructs. The primary constructs are Perceived Ease of Use, Perceived Usefulness, Attitude, Behavioral Intention, Learning Technology Self-efficacy, and Subjective Norm. Park utilized a seventh variable in the original survey that was not directly aligned with the TAM2. This variable, System Accessibility, correlated with the perceived ability of faculty to access the learning technologies at their university.

In order to summarize the data generated from the survey's Likert questions (Strongly disagree [1], Moderately disagree [2], Somewhat disagree [3], Neutral [4], Somewhat agree [5], Moderately agree [6], Strongly agree [7]), each group of questions aligned to a specific TAM2 construct were combined in SPSS into a single variable by estimating the median of the responses. Each construct was analyzed using descriptive methodology, generating frequency tables, as well as histograms. The full list of specific survey questions can be found in Appendix B.

Park's original survey was aimed at the intention of student use of learning technologies in their own course work. Content validity was established through pilot testing with 25 people in educational technology field, as well as students in higher education. Eleven demographic questions were added to help identify the research population. Park's questions were then reframed from a student learner perspective to that of the PD leader's perspective, inviting the PD leader to judge the technology usage behavior and readiness of the faculty they regularly work with.

For purposes of validation and pilot testing, after the initial adaptation, the survey was loaded into the Survey Monkey platform and distributed to Ph.D. students in a learning technology program. Revisions were made based on their suggestions. The survey was then distributed to the message forum of the Professional and Organizational Development Network in Higher Education, as well as a Facebook page targeted at users in the learning technologies field. Leaders in faculty PD (executive, directors, assistant directors, lead instructional designers, etc.) currently working in higher education but outside the state of Texas (outside the research population) were invited to take the survey and offer feedback. Twenty-nine respondents participated in the survey. Their responses were analyzed in SPSS. Their feedback was used to make further minor clarifications to the question wording, as well as add two additional demographic questions for a total of 13. Two of the original questions asked if using learning technologies would improve faculty's academic performance and some respondents felt the term was confusing. Academic performance was replaced with the phrase, "teaching and scholarship." The 18 questions aligned to the TAM2 were evaluated for internal reliability and were found to have a Cronbach's Alpha of 0.938.

The 13 demographic questions were meant to help illustrate the qualifications and backgrounds of the PD leader participating in the survey. Of particular note were the leaders who had a teaching background or still maintained their faculty role at the university. Ninety-two percent of the leaders on the participating campuses were either former or current faculty members.

In addition to the quantitative TAM2 survey, eight semi-structured interview questions (see Appendix C) were created and used to further flesh out the narrative of

who these PD leaders were and just how their CTLs (or equivalent body) fit into their university's structure.

### Procedures

Initial Institutional Review Board approval was obtained on July 26, 2018 through the University of North Texas Office of Research Integrity and Compliance (see Appendix E). It was noted in the initial Institutional Review Board application that the survey was still undergoing validation procedures and was likely to change. Upon completing validation of the survey instrument, a modification was submitted to University of North Texas for the additional and changed questions. Final approval for research was granted on September 24, 2018.

Leaders of CTLs across the research population were identified through each University's website and verified through email. In some cases, the university's website information was incorrect or outdated and further investigation by phone was required for four of the universities. Once these leaders were identified, electronic surveys built in the online survey tool, Survey Monkey, were sent in a recruitment email (see Appendix D) to the requisite email address for each stakeholder. In some instances, for larger universities, there were multiple leaders (e.g. assistant or associate directors in addition to directors) who were sent survey links. Multiple follow-up emails were sent to encourage participation. In addition to the link to the online survey, participants were asked if they would be interested in taking part in an interview with the researcher, and if so interested to please confirm their willingness to do so.

After distributing and collecting the surveys, four participants at three universities acknowledged willingness to participate in an interview, confirmed interview

appointments and were subsequently interviewed. The universities participating in the interviews ranged in size from small (2,000 student enrollments), to medium (15,000 student enrollments), to large (70,000 student enrollments). One interview was conducted face-to-face, while the other two were conducted through Blackboard Collaborate, an online virtual meeting space. All three interviews were recorded and transcribed by the online service Rev.com for later analysis with the consent of those being interviewed.

### Data Analysis

Survey data was collected electronically through the Web platform Survey Monkey and exported to SPSS. SPSS was used to perform a univariate analysis on the quantitative survey data using descriptive statistic methodology to describe findings in terms of frequency distribution tables and histograms.

The qualitative interview data was organized in alignment with the research questions and coded using pattern coding. Pattern coding not only organizes the body of the qualitative research data, but also attempts to attribute meaning to that organization—identifying patterns, trends, and relationships (Saldaña, 2015).

### Limitations

The research study faces several limitations. The primary limitation is the way in which the TAM2 is utilized. In most research studies, the TAM2 is used to gather first hand assessments of the end user's relationship and facility with a technology. In this instance, the TAM2 is leveraged to gather secondary evidence from the research population—in essence asking one group (PD leaders) to assess another group's (faculty) relationship with technology. This was particularly problematic concerning the

TAM2 construct dealing with assessing another person's intended behavior. No other instance of this application type was discovered in the literature review. It is not about measuring faculty's actual facility with technology, but rather gauging the perceptions of faculty by PD leaders who are charged with assisting them. There is also an assumption that PD leaders at these universities have a thorough understanding of faculty perceptions of and willingness to use learning technologies.

The research was limited to a single rater for the qualitative research data during the coding process. Typically, qualitative research projects utilize multiple raters when coding and categorizing data to ensure all raters are observing the same patterns in the text. Multiple raters during coding would help to increase the reliability of the process.

Also, it should be noted that while the group of universities that met the criteria for study were relatively high (33), only 26 PD leaders from 22 universities participated in the survey, and only four PD leaders from three universities participated in the semi-structured interviews. This is a relatively small sample size (further limited to public universities in Texas) and the ability to generalize the results should be limited to the research population.

### Conclusion

This study established a baseline of PD at CTLs at four-year public universities in Texas to emerge through a narrative built around the mixed methods research design. A TAM2 aligned quantitative survey was adapted from an existing instrument to specifically gauge the perceptions of those PD leaders charged with supporting faculty in their teaching, as well as the use of technology in their instruction and distributed

electronically to 33 campuses that met the study criteria. Twenty-six participants from 22 universities responded to the survey.

Semi structured interview questions were also developed, and four PD leaders from three universities agreed to be interviewed. The interviews were recorded and then transcribed through Rev.com with the resulting qualitative data pattern coded and analyzed.

It is hoped that the narrative developed from the analyzed mixed methods data and any baseline established for higher education faculty PD at public universities in Texas will contribute to the development of a more uniform PD structure across not only all of Texas higher education, but across higher education as a whole.



## CHAPTER 4

### DATA ANALYSIS

#### Introduction

This chapter examines the findings from this mixed methods research study. It also details the coding used and analysis of the data generated through the study. The data used in this study were collected from electronic surveys distributed to participants as well as coded data generated from semi-structured interviews with volunteers from the survey population. The survey was adapted with permission from Park's (2009) existing validated survey instrument and subsequently revalidated. The target research population was professional development (PD) leaders of Centers for Teaching and Learning (CTLs) at publicly funded four-year universities in Texas. Out of 33 possible universities that met the criteria of the study (outlined in Chapter 3), 29 PD leaders from 22 universities participated in the study. The participants took the electronic survey through Survey Monkey. Four professionals from three universities agreed to participate in the semi-structured interviews. All interviews were recorded and transcribed using Rev.com. All data collected were confidential and no identifying information was used in the analysis.

This descriptive research study utilized the technology acceptance model (TAM2) in the design of the qualitative instrument. Typically, the TAM2 is used to gauge the abilities or perceptions of the primary technology user. In this instance, the TAM2 is used to gather secondary evidence—the perceptions of PD leaders of the faculty they are charged with supporting and as such should be considered a limitation of the study.

Semi-structured interviews were used to help more fully flesh out the narrative produced by the quantitative data.

The research questions (RQs) for the study were:

1. What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state-supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty?
2. To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution?
3. To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions?

#### Analysis: Survey Data

##### Technology Acceptance Model 2 Survey Questions

The survey was built using the TAM2, and as such the survey data will be analyzed along the primary constructs present in the instrument. The primary constructs are Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude (AT), Behavioral Intention (BI), Learning Technology Self-Efficacy (LTSE), and Subjective Norm (SN).

There was a seventh variable present in the original survey that was adapted that was not directly aligned with the TAM2. This variable, System Accessibility (SA) was related to the perceived ability of faculty to access the learning technologies provided by the university. SA was kept when the survey was adapted because the researcher felt it would aid in providing a better picture of learning technology usage at the universities being studied. An internal reliability test was run on the 18 questions related to the TAM2 and a Cronbach's Alpha score of .938 was returned, which is a very good score

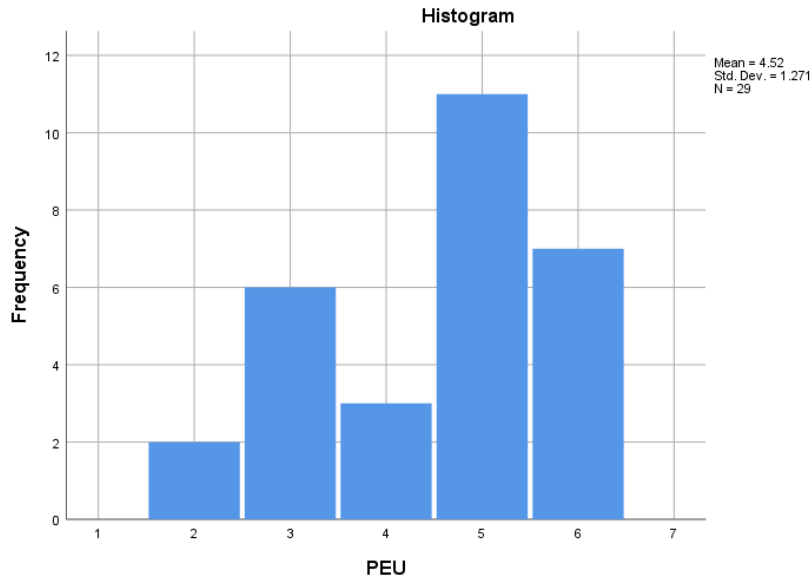
for research purposes (DeVellis, 2016). An internal reliability test was also run on each group of questions aligned to specific TAM2 constructs, and all returned acceptable Alpha scores (PUE, .896; PU, .885; AT, .938; BI, .847; LTSE, .760; SN, .793). Each group of questions aligned to a specific TAM2 construct were combined in SPSS into a single variable by estimating the median of the responses. Each construct was then analyzed using descriptive methodology, generating frequency tables and histograms.

Three questions contributed to the TAM2 construct of PEU. While PEU is considered grounded to one’s own general computer self-efficacy it is also aligned to the idea that the easier a system is to use, the more using it can increase one’s job performance (Venkatesh & Davis, 2000). Table 1 and Figure 1 show that 62% of surveyed PD leaders agree to some extent that faculty find the learning technologies at their respective universities easy for faculty to use. Though it is disconcerting that almost a third (28%) disagree to some extent and skew negatively towards the idea that learning technologies are easy for faculty to use. Ten percent of the respondents were neutral.

Table 1

*Perceived Ease of Use Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Moderately disagree	2	6.9	6.9	6.9
Somewhat disagree	6	20.7	20.7	27.6
Neutral	3	10.3	10.3	37.9
Somewhat agree	11	37.9	37.9	75.9
Moderately agree	7	24.1	24.1	100.0
Total	29	100.0	100.0	



*Figure 1.* Histogram illustrating the distribution perceived ease of use data.

Three questions contributed to the construct of PU. The TAM2 posits that people determine the PU of a technology system by comparing what the system does with what they need to accomplish in their own work (Venkatesh & Davis, 2000). When considering if learning technologies would make faculties' jobs easier, Table 2 and Figure 2 show PD leaders are generally favorable to the idea. Over half (55%) agree to some extent with 17% strongly agreeing. Only 24% disagreed, with 7% strongly disagreeing. It should be noted here that two of the questions mentioned that learning technologies would improve or increase the productivity of the faculty members teaching and scholarship while one question mentioned learning technologies making it easier for a faculty member to teach their class. Teaching and scholarship are two different pillars of the faculty profession, and as such some universities prioritize one over the other. These varying missions or cultures at the universities could explain the strong responses at either end of the scale.

Table 2

*Perceived Usefulness Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Strongly disagree	2	6.9	6.9	6.9
Moderately disagree	1	3.4	3.4	10.3
Somewhat disagree	4	13.8	13.8	24.1
Neutral	6	20.7	20.7	44.8
Somewhat agree	4	13.8	13.8	58.6
Moderately agree	7	24.1	24.1	82.8
Strongly agree	5	17.2	17.2	100.0
Total	29	100.0	100.0	

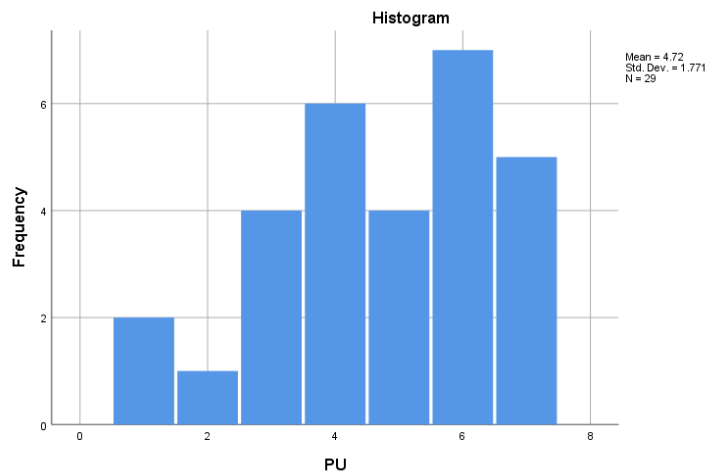


Figure 2. Histogram illustrating the distribution of perceived usefulness data.

Three questions on the survey contributed to the AT construct of the TAM2. AT is concerned with the feeling of an individual (be it positive or negative) about performing a particular action or behavior (Fishbein & Ajzen, 1975). The questions were couched along the lines of if PD leaders thought faculty were positive in the use of learning technologies in their instruction and were willing to use them in their jobs. Table 3 and Figure 3 show that 66% agree to some extent that faculty think learning

technologies are important to their job. Only 20% disagreed to some extent with 14% remaining neutral.

Table 3

*Attitude Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Moderately disagree	2	6.9	6.9	6.9
Somewhat disagree	4	13.8	13.8	20.7
Neutral	4	13.8	13.8	34.5
Somewhat agree	10	34.5	34.5	69.0
Moderately agree	8	27.6	27.6	96.6
Strongly agree	1	3.4	3.4	100.0
Total	29	100.0	100.0	

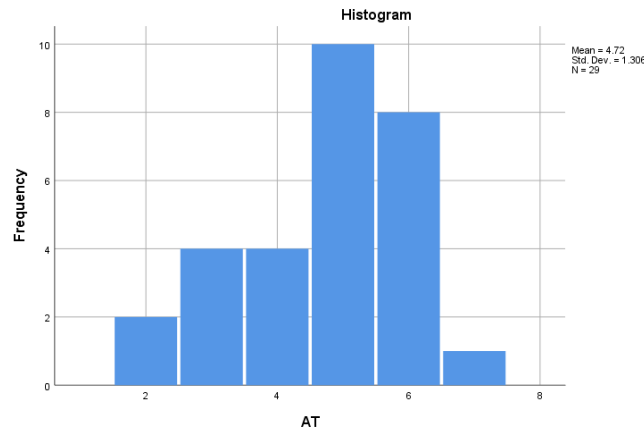


Figure 3. Histogram illustrating the distribution of attitude data.

Two questions on the survey contributed to the BI construct. BI is the measure of just how strong someone’s intention is to perform a certain task or behavior (Fishbein & Ajzen, 1975). Table 4 and Figure 4 illustrate the distribution was more even, with 41% agreeing to some extent and 28% disagreeing to some extent. Thirty-one percent were neutral in response. This was perhaps one of the more difficult constructs to measure because the questions are asking PD leaders to directly comment on the intended

actions of their faculty members. This may account for the more even distribution of responses and the high number of neutral responses, as they were perhaps unsure what might drive someone else's behavior intent.

Table 4

*Behavioral Intention Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Moderately disagree	2	6.9	6.9	6.9
Somewhat disagree	6	20.7	20.7	27.6
Neutral	9	31.0	31.0	58.6
Somewhat agree	5	17.2	17.2	75.9
Moderately agree	7	24.1	24.1	100.0
Total	29	100.0	100.0	

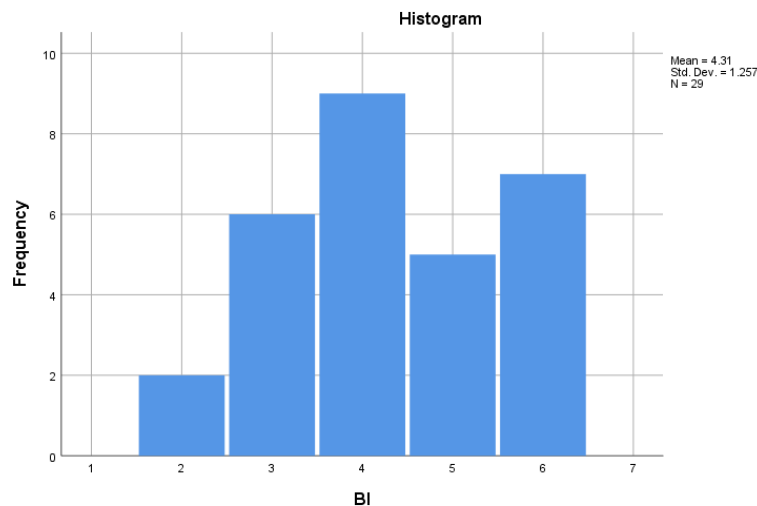


Figure 4. Histogram illustrating the distribution of behavioral intention data.

Two questions on the survey contributed to LTSE. When using technology, computer self-efficacy will be a determining factor for a user's perceived ease of use before and after they use the technology (Venkatesh & Davis, 1996). A high-user LTSE can determine whether a system is seen as easy to use. PD leaders responded positively, with Table 5 and Figure 5 showing 76% respondents agreeing to some

extent. Seventeen percent disagreed to some extent and only 7% were neutral in their response. Their responses indicate that PD leaders generally perceive their faculty as believing they have the necessary skills to interact with learning technologies and find them easy to use.

Table 5

*Learning Technology Self-Efficacy Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Moderately disagree	2	6.9	6.9	6.9
Somewhat disagree	3	10.3	10.3	17.2
Neutral	2	6.9	6.9	24.1
Somewhat agree	16	55.2	55.2	79.3
Moderately agree	6	20.7	20.7	100.0
Total	29	100.0	100.0	

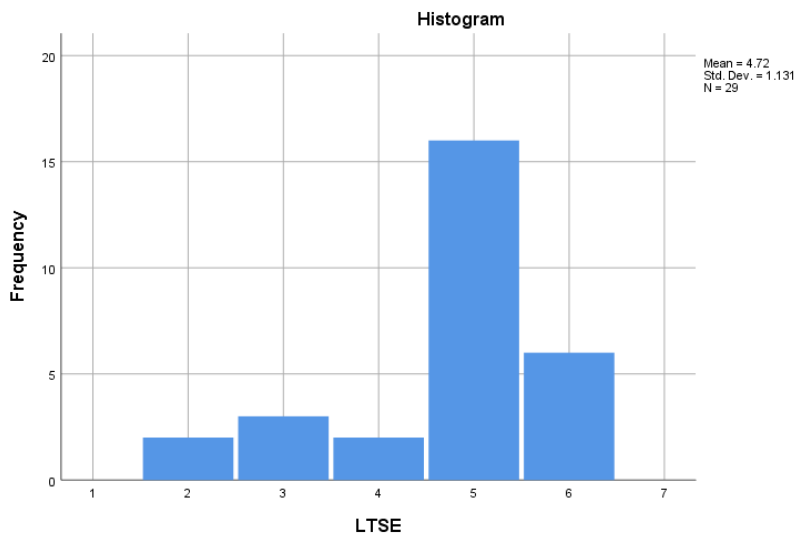


Figure 5. Histogram illustrating the distribution of learning technology self-efficacy data.

Four questions from the survey contributed to SN construct. SN is someone's perception that people we view to be important think we should or should not perform a specified behavior or action (Fishbein & Ajzen, 1975). In essence, if others in our work



place think an action is important, then we are more likely to believe we should perform that action so that we may be elevated. Table 6 and Figure 6 show that most PD leaders agreed with the idea their faculty members cared what others in their work place thought of their use of learning technologies. Seventy-two percent agreed to some extent, with 17% disagreeing to some extent and 10% registering a neutral response. In the demographic questions analyzed later in this chapter, it is noted that most PD leaders surveyed were faculty members themselves.

Table 6

*Subjective Norm Construct*

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Moderately disagree	2	6.9	6.9	6.9
Somewhat disagree	3	10.3	10.3	17.2
Neutral	3	10.3	10.3	27.6
Somewhat agree	8	27.6	27.6	55.2
Moderately agree	9	31.0	31.0	86.2
Strongly agree	4	13.8	13.8	100.0
Total	29	100.0	100.0	

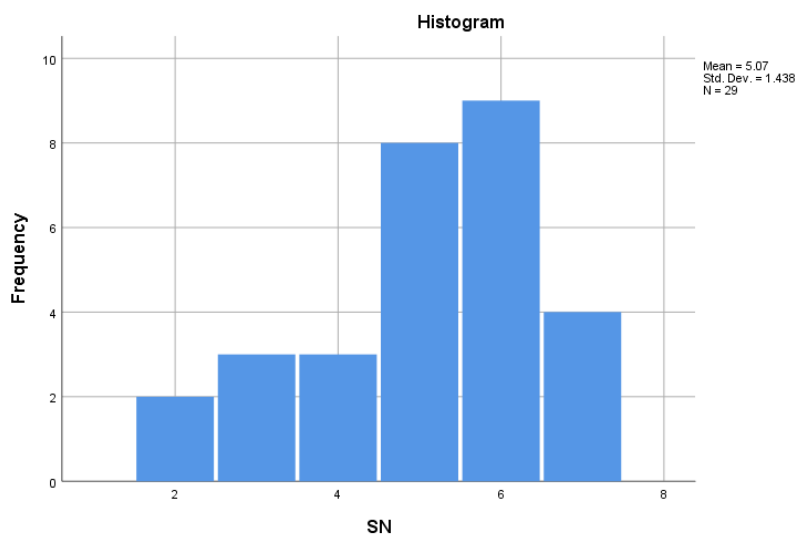


Figure 6. Histogram illustrating the distribution of subjective norm data.

The final question of the survey (not counting demographic and open-ended responses) concerned SA (system access and use). Though not aligned to the TAM2, it did appear on the originally developed survey from which the research survey was adapted. It was kept as an organizational factor, to perhaps show any issue with access to learning technologies at any of the PD leader's universities. Surprisingly, 50% disagreed to some extent with the idea that faculty had an easy time accessing and using the learning technologies at their university. Nineteen percent were neutral and 27% agreed to some extent. This may speak to other issues at each university that are beyond the control of the PD leaders. Perhaps there are other departments responsible for access to, and training for, certain systems, or the university may have a poor technical infrastructure in place to support the use and dissemination of learning technologies. Such support (technical or connection support) would be outside the realm of what the typical PD leader would be tasked with providing.

#### Demographic and Open-Ended Responses

In addition to the questions aligned to the TAM2, the survey also included several demographic questions and two open-ended response questions. Some interesting things to note about the primary roles that help to identify the population who serve as PD leaders at CTLs at public universities in Texas—overwhelmingly, 92% of the respondents have served as higher education faculty members with 52% holding a rank of Assistant Professor or higher. Most are relatively new to the PD field as 38% have five or fewer years of experience. This aligns with the findings in the literature review that show faculty value peer mentoring and faculty lead PD opportunities. Though the focus of the research study was on faculty PD, it should be noted that 80% of these PD

leaders have offered PD to administrators or staff members of their institution who hold non-faculty roles.

As noted in the literature review, collaboration too is a valuable part of PD at the respondents' universities. Eighty-eight percent of the PD leaders worked in conjunction with other departments at their university to deliver PD to their university members. For PD leaders at these universities, perhaps the most disconcerting statistic from the survey is that only 19% of the respondents can claim that faculty PD is 100% of their workload. Most of the respondents (38%) said that PD is only three-quarters to one-half of their workload.

With regards to learning technologies, 58% responded that they are responsible for providing PD to faculty concerning learning technologies. This indicates there is either another entity at the university outside the center that holds this responsibility, or there is no entity directly charged with providing faculty PD support for learning technologies. Thirty-eight percent responded that they are directly charged with overseeing PD for learning technologies at the university, while 38% admitted to sharing this responsibility with other departments at the university. These responses indicate a muddier picture for PD for learning technologies. The responsibility seems either owned by some CTLs, shared across multiple departments across the university, or it is unclear who is responsible.

Twenty-two out of 26 respondents provided feedback for the open-ended question: *What technologies available on your campus (if any) do you consider important for your faculty to incorporate into their instruction? Why or why not?* By far the most consistent answer was the university's Learning Management System (LMS)

with 18 respondents mentioning its importance. Their comments specifically noted the importance of a LMS at their universities. They mention student requests that the LMS be used and the importance of the tools it contains to assist students and faculty such as grade books, testing features, and communication options. They also mention the benefit of being able to use the LMS in face-to-face, hybrid, and online classes. Ten respondents mentioned in-class technology systems (computers, projectors, Smartboards, video cameras, etc.). Polling software or in class clicker response systems were mentioned by five respondents. Only one respondent mentioned software analysis packages like SPSS or NVIVO, speaking to the focus of most of these PD leaders on teaching and learning rather than research and scholarship. Surprisingly, given their proliferation in the last 10 years, mobile devices were only mentioned by one respondent.

Twenty out of 26 respondents provided feedback for the open-ended question: *What are some specific likes or dislikes you may have about the way professional development for faculty members is handled on your campus?* Only five respondents offered specific likes. Two appreciated that faculty are open and willing to try new tools or techniques offered in PD. Two thought that PD was useful and liked the variety of delivery methods available to deliver content to faculty. One enjoyed the level of collaboration across departments at their university.

The dislikes were more numerous. The dislike most frequently mentioned was that PD was not well integrated at their university. Some respondents claimed multiple departments offered PD, but the responsibilities for who offered what was not clear, or multiple departments overlapped in their offerings. One respondent specifically

mentioned pockets of PD across campus all acting independently with no coordination between their efforts. Six respondents found that they did not have enough support from their administration, either through funding, or enough staff positions, or mandating policies with little direction. Four respondents called for PD for faculty to be mandatory, with one specifically citing that because faculty are not trained on certain technologies, these systems go unused.

#### Analysis: Semi-Structured Interviews

A total of four PD Leaders from three universities participated in the semi-structured interviews. The universities varied in size from a small university (2,000 student enrollments), to a medium or midsized university (15,000 student enrollments), to large (70,000 student enrollments). The small university did not have a center, but the PD leader interviewed was charged with providing PD to faculty for teaching with technology. The midsized university had a specified center, of which the PD leader interviewed was the director and responsible for presenting PD related to teaching, research, and technology. The large university had multiple departments responsible for delivering PD not only across the main campus but also at other universities in their system. Two PD leaders were interviewed from the large university. One directed a department focused on delivering PD involving teaching and research. The other PD leader directed a department focused on delivering only PD involving technology. During the interviews it became apparent that all four PD leaders were very hands on with their approach to PD. They were all delivering PD directly and working with faculty one-on-one. They were not merely overseeing PD deployment at their respective universities. Pseudonyms were used to protect participant confidentiality.

## Demographics

Grace has a Ph.D. in learning technologies and is an instructional designer at the small university who is charged with overseeing faculty PD with regards to technology and instruction. She is also an adjunct instructor and involved in quantitative research projects in her discipline. Unusually, she is embedded in the IT department of her university due to its small size. She works with faculty teaching both online and face-to-face courses. Her time is split between larger group presentations of PD and one-on-one sessions. She is also responsible for administering several systems at her institution, the primary one being the LMS. Because of this, she often provides support for student issues in addition to her support of faculty. She has been involved in PD for six years.

Ellen is the director of the center at the midsized university. She has her Ph.D. in comparative literature and is a tenured faculty member with a rank of Associate Professor. She is currently involved in research in her major field, as well as research into the scholarship of teaching and learning. Her position reports directly to the provost of the university. While her center began by offering PD opportunities focused on pedagogical and research practices, faculty demand has prompted her to begin offering more technology-focused opportunities. Technology PD on her campus has traditionally been offered through another department. She has been involved in PD for six years.

Walter and John both work at the large university, but they are located in separate departments. Walter works for a center focused on pedagogical and research practices. He also presents PD to others at his university who are staff members, as well as graduate students. He has a Ph.D. in curriculum and instruction and works as an

adjunct instructor. Walter is also involved in current research into his discipline. He collaborates with several departments across his university to offer PD opportunities. He has been involved in PD for five years. John works at a department focused on the use of technology in instruction. He has a background in technology from the private sector. He too collaborates with several departments across the university to offer PD opportunities. He has been involved with PD for 12 years. Walter and John both present PD not only to faculty and staff on their own campus, but also to other universities that exist in their university system. Table 7 summarizes the interview participant demographics.

Table 7

*Participant Demographics*

	Experience as Faculty	Research Experience	PD Experience
Grace, Ph.D.	Adjunct	Quantitative in learning theory	6 years
Ellen, Ph.D.	Tenured	Literature and the scholarship of teaching and learning	6 years
Walter, Ph.D.	Adjunct	Instruction and curriculum, as well as game-based learning	5 years
John	None	None	12 years

*Note.* PD = Professional development.

Findings

The interview transcripts were analyzed and coded based on emerging patterns in the text. The transcription of each interview was color coded in order to identify the present categories. This process was performed multiple times, refining and evaluating the detected codes each time. A total of eight categories resulted from the coding of the semi-structured interview responses: (1) Level of Support, (2) Culture Change,

(3) Preparation to Teach, (4) Teaching Online, (5) Faculty Openness to PD, (6) PD Integration, (7) Use of Technology, and (8) Academic Freedom. Each category was examined to see if it would or would not align with the RQs of the study. The results are in Table 8. The results are presented alphabetically below each question and not assigned any order of importance.

Table 8

*Category Alignment with Research Questions*

RQ 1 PD Leaders Perceptions of Current State of PD Systems	RQ 2 Faculty Willingness to Accept New Learning Technologies	RQ 3 Preparing Faculty to Use New Learning Technologies
<ul style="list-style-type: none"> <li>• Pd Integration</li> <li>• Preparation to Teach</li> </ul>	<ul style="list-style-type: none"> <li>• Academic Freedom</li> <li>• Openness to PD</li> </ul>	<ul style="list-style-type: none"> <li>• Culture Change</li> <li>• Use of Technology</li> <li>• Level of Support</li> <li>• Teaching Online</li> </ul>

*Note.* RQ = Research question; PD = Professional development.

### Research Question 1

What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state-supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty?

All four PD leaders interviewed were relatively long-serving professionals, deeply entrenched in the field with a minimum of five years of experience at each of their respective universities. They all had ample experience designing and delivering PD to faculty members of their campus, with two PD leaders, Walter and John delivering PD to faculty outside of their own campus. John even professed experience in delivering PD to staff members and graduate students. All four PD leaders' breadth and length of experience make them intimately familiar with PD design and delivery systems at their institutions.



## Professional Development Integration

The issue of fully integrating PD efforts across the university was apparent in three out of the four responses of the participants. From the interviews, it is clear that PD often exists in pockets across an institution or is divided along lines of pedagogy and technology. Often the size of the university can greatly affect its PD efforts, as is the case with Grace. She is the only person producing PD for faculty at her institution. As such, integration with other PD producing bodies is not an issue. Her only concern related to integration was based on her reporting structure. Currently, she is housed in the IT division of her university. She is working to be moved to the provost's office to be more closely aligned with faculty needs.

Ellen certainly faces the issue of PD integration. From her responses, there are two bodies on campus responsible for delivering PD to faculty—her own center and the distance education department (DED). Ellen's own center began as a pedagogically focused effort where technology was little considered. She said that most technology PD was handled by the DED. She notes:

It's been segregated in this way, it seems to me. I have not had an ideal relationship with learning technologies at this institution. I have some real complaints as a faculty member about the...support we receive to develop online classes for instance. It's frustrating to me and I think frustrating to a lot of other faculty.

She mentions there has been talk of more directly integrating her center with the PD branch of the DED, with her even writing and presenting a proposal of such an integration, but so far there is no movement on this initiative. She has attempted to collaborate with the DED, helping to organize their annual learning technologies conference, but she said, "I felt like I might be stepping on toes, and...felt like they have

their thing going, and I didn't get to contribute very much." As a response to faculty requests she has begun presenting more technology-driven topics in her own PD schedule in addition to those focused on teaching and scholarship, in essence more deeply entrenching the division between the two departments and perhaps duplicating some PD efforts.

Walter and John work at two different centers at the same university. Walter's center is focused on pedagogy while John's center is focused on technology in instruction. Walter mentioned how closely they often work, "We collaborate pretty closely because our missions are very, very similar, and our bosses report to the same person in the Provost's office." Walter said a consequence of having such similar missions and reporting structure is that there often overlap of the services offered. At a smaller university this might be a problem, but because of the size of the university and the sheer number of faculty, staff, and students they serve such overlap is not an issue.

### Preparation to Teach

Preparation to teach was apparent in all the interview participants' responses. Participants discussed the level of preparation for new university faculty members to teach classes, and the types of pedagogical content they received (either full courses or PD sessions) while getting their terminal degree. Grace lamented that most faculty she has worked with are not prepared to teach at the university level. She notes that unless a faculty member is majoring in an education or education adjacent field, they have likely never taken a course in pedagogy. She said, "You're a great expert in history, science, math—whatever it is you majored in, but you didn't prepare to teach."

Ellen had a similar outlook to Grace's, stating flatly, "I don't think they're that well prepared." In her own experience as a new teacher as a graduate student the only teaching preparation she received was an evaluation of her syllabus to ensure she had enough novels listed for the literature course she was teaching. She mentioned that more graduate schools are now making the effort to offer pedagogy content to those that might want to teach, but in general support is low. She also said new teachers are often mistakenly looked at as innovative simply on the basis of being new to the discipline, but the reality is that they, "might feel overwhelmed and unprepared to take some chances and do new things." She said what often happens is that faculty will fall back and instructionally mimic what their professors did, right or wrong. She notes that experience is more of an indicator of innovation because when you are, "more experienced you actually feel more empowered to become more innovative." A specific experience she describes is going to view a class of a new faculty member in the Geology Department a few weeks prior to the interview. She said he was very knowledgeable about the subject matter, but the implementation of that knowledge into his instruction was very rough. He was simply talking at students and the students were fully disengaged. She described the experience as painful.

Though not explicitly stated it can be inferred from their interview responses that Grace and Ellen's universities seem to hold teaching in high regard. Conversely, Walter and John's university explicitly prioritizes research for new tenure track faculty members, not teaching acumen. John said, "We are a Research One university, so the annual reviews don't always reflect teaching as highly as it does research. So, research is typically how they've measured [success], especially as they're working on tenure."

This indicates that even if someone is poorly prepared to teach while earning their terminal degree, improving their skill set through PD at Walter and John's university might not be prioritized. Walter adds, "I've had people pretty high up in administration say that early tenure-track people, their focus is on research, and if we have them focus too much on their teaching, that actually might not be beneficial to their career." Here the preparation for a new faculty member to teach seems little considered and little valued over research and publication.

## Research Question 2

To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution?

All four respondents work in centers that are active across their respective campuses, though each of their missions differ. Grace is charged with presenting PD for both technology and pedagogy. Ellen's center began as one entirely focused on teaching and scholarship, and though learning technologies PD is largely handled by the DED, she has recently begun offering PD sessions over learning technologies as well. Walter is largely responsible for pedagogy while John is tasked with learning technologies, but they both admit overlap for their PD support for faculty. Clearly, they are all active in presenting PD to faculty and all present PD associated with learning technologies to some extent.

## Academic Freedom

Academic freedom, that intrinsic right of higher education faculty to teach or present ideas without threat of censure or job loss, was present in Grace and Ellen's

interviews. Walter and John did not explicitly discuss academic freedom. In Grace's case, she saw Academic freedom as a tool of leverage for faculty to use in order to avoid attending required PD sessions. She said, "They feel like being told that they have to attend training is an infringement on their academic freedom." She explicitly mentioned faculty balking at the required use of standardized course templates in their LMS. Grace's justification for this instance is that, "We're not telling you how to teach, we're not telling you what to teach, we're telling you how the room should be laid out." She goes on to say that generally her efforts are well respected, and she is liked by faculty but anything mandatory receives a lot of pushback with academic freedom cited as a reason for noncompliance. In Grace's case, true academic freedom is not what faculty are referencing, but rather it is being leveraged as an excuse to not participate.

Being a fully tenured faculty member, Ellen has a justifiably different stance on academic freedom. She says,

I think we should have academic freedom. I teach...in a very different way than other people do, and I don't want to be forced to level down. Do whatever the middle is. I don't like that approach in academia at all.

Throughout the interview she mentions policies in place in the DED (largely about teaching online or online course development and quality assurance). Too often she felt these mandatory efforts were not focused not on pedagogy or increasing student learning outcomes but rather technicalities. She takes a more faculty-centered approach in her center, stating, "Everything we do in our office is voluntary."

### Openness to Professional Development

All four participants discussed faculty willingness to participate with PD and accept the learning technologies presented to them. Grace mentions throughout her

interview her and the administration's desire to mandate or require some type of PD and technology integrations for their faculties' instruction (templated course structure and required training for teaching online). In reference to mandatory PD for those wishing to teach online, she says, "We have repeatedly attempted to get something through from the administrative level to require this, and there's been repeated pushback on behalf of faculty." Conversely, she said her non-mandated PD sessions have been well attended and highly rated. With regards to new faculty, she notes:

I'm seeing the newer faculty that are coming in have a much more open-minded [approach]. They've used technology in their undergrad and their graduate programs. They've seen technology implemented in other places that they've worked. They've taken online courses. They've been exposed.

Ellen mentions that faculty are very willing to engage with her PD offerings. She said that her attendance is generally up, garnering 20-30 people at each event she offers. She also said that her programming has grown over 300% over the last several years, speaking to the level of buy-in she is receiving from faculty. She does note that most faculty are reticent to engage with new technologies because:

They are afraid of it being very complicated...and it's frustrating, and you're like, 'I don't want any more of that in my life.'...It's a fear of the unknown. And then the sense of, 'Oh my God, you want me to learn more stuff? I'm already overburdened at work.'

Walter and John tend to work with more established faculty members as the new tenure track faculty often prioritize research because it is held in more esteem by their university. John says, "I work with a lot of faculty that are 80 years old, and a lot of them want to try new things and are very adamant in doing so." In the same response John also acknowledges there are just as many faculty at the university that do not see the value in his help and have no interest in changing their approach or learning something

new. John mentions the same trend that Ellen sees with younger faculty, “They’ve grown up using a lot of these tools. They’ve done it as a student, so it is a little bit more native for them.” Walter and John both admit that they have a tough time identifying commonalities between faculty who are willing to engage with PD because so much depends on the faculty’s background. They may come from a different country with a poor technological infrastructure and as such are unfamiliar with new technologies and unwilling to engage with them. Counter to that, because they have little background, they may be excited to work with and learn new technologies. Walter, when asked to give a general picture of a faculty member’s technical acumen says, “I can’t paint with a big broad brush.”

### Research Question 3

To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions?

All four interview participants offer some sort of PD in the use of learning technologies and are certainly preparing faculty to use them in their instruction. However, it should be noted that none spoke explicitly as to just how effective the use of such technologies might be. In Chapter 1, it is suggested that properly determining effective use will be closely tied to the implementation of the learning technology. Tennyson’s (1997) fourth-generation instructional design systems model (see Appendix A) is suggested as a way to facilitate effective use, but none of the participants mentioned a particular instructional model to help implement any learning technology. All participants spoke more broadly in terms of the use of learning

technologies by faculty. Measurement as to how effective faculty use was at their respective universities was not mentioned.

The closest mention of effective use was in Ellen's interview when she discussed Quality Matters, an online course design rubric that does cover the implementation of technology into online course design (with an emphasis on user accessibility and support of the technology), but may not be suited to determining effective use. Quality Matters is a mandatory part of the online course design process at Ellen's university. It is optional at Walter and John's. Grace did not mention a course design rubric in use at her university.

### Culture Change

Some element of culture change was mentioned in the responses of all four interview participants. In this instance culture changes refers to the culture of the institution either having changed or needing to in the future with regards to PD and learning technologies. Throughout her interview Grace repeatedly referenced the need for mandatory PD for faculty—primarily in regard to teaching online. In her estimation, the culture of the university towards PD was too faculty oriented. She wanted to see mandatory PD for faculty teaching online, lamenting, "We're one of the few campuses in the [university] system that does not require any sort of training." She is counting on her Vice President of Academic Affairs to, "try to push the mandated training issue again." She would also like to see bigger attendance at PD sessions and a larger focus on sessions that stress pedagogy rather than technology.

Ellen too was dissatisfied with her university's current culture but counter to Grace's view. Ellen's university had several mandatory practices in place concerning



online course design and delivery. She felt these course design policies forced development practices that were rote and pedantic, lending the practice of teaching online a factory feel. She wished technology at her university was more integrated with problem solving. She wants faculty to reflect on the issues they are having with their instruction and then be provided, “research-informed best practices to address those issues, and [consider] how does technology support [them].”

Walter and John face culture issues inherent to a very large university. They mentioned several times during their interview that pockets of faculty innovation exist all over their university, but these pockets may or may not be known. Also, technology is often purchased by a department or college within the university, but others are not aware that it exists or how it is being utilized. Walter said, “The university is so large that, even within colleges, there are different programs. So, you might have a pocket of innovation here, and another part of the program or college doesn’t even know it.” They were longing for more transparency from department to department and from college to college so faculty are more aware of the technologies and practices present across the entire university.

### Use of Technology

Are faculty using the technologies presented to them at each of these universities? In general, Grace notes that her faculty are well engaged with the learning technologies on her campus. However, counter to her calls for mandatory PD, she claims you cannot force adoption of new technology on faculty. She said, “I think a lot of people...have had technology tools shoved down their throat.” She also says that

administration has mandated the use of a particular technology but then not followed through with training to support it.

Ellen paints a more contentious relationship between her faculty and learning technologies. Through her responses, it is clear that some technologies (LMSs and the tools within it) are mandated but may not have proper support from the DED (or she may not be aware of the support available that may further complicate her response). She specifically mentioned one faculty member that was developing an online course and was facing several issues related to the technologies used to teach the course. She states:

I had a faculty member who developed an online class for the first time this summer, and she was complaining that she needed help to learn how to make good PowerPoint videos for her online classes. She didn't feel that there was enough support [such as], 'How do you use this technology effectively,' or 'How to write lectures in a way that would work really well on video for the class,' or 'How to use [video conferencing software] in different ways to support student learning.'

Walter and John's responses are again colored by the sheer size of their university. They mention several times the difficulty in predicting technology use by faculty due to the wide variety of faculty types at the university. They can say that they work most regularly with established, tenured faculty members who are secure enough in their professional standing that they are willing to engage with new technologies and teaching practices. There is also the issue of knowing just which departments or colleges have which technologies available for faculty to use. Walter mentions a specific instance with the College of Liberal Arts that had recently bought a light board (a writable surface that is illuminated and can be captured to video) for instructional use. This college allows other units on campus to use their technology, but the university has

also purchased a light board intended for university-wide use. They say this is illustrative of an issue with coordination across campus for the even distribution of and access to learning technologies for faculty use.

### Level of Support

Level of support can be construed as support these PD leaders receive from both the faculty they serve and the administration to whom they report. All four participants report varying levels of support from their administration, but they all agreed that faculty were supportive and appreciative of their PD efforts. Aside from the push back from faculty she receives from mandated PD, Grace says faculty are largely appreciative of her efforts, and her trainings are well attended and highly rated. She says too that she is well supported by the administration at her university: “The administration here is very good. If I suggest that we need something, and it’s something that they can find a home for in the budget...they’re very good about providing me with the tools and technologies that we need.” Her administration is even supportive of her efforts at mandated PD sessions. Most of Grace’s support issues involve budgetary issues. She explains, “I’m in a very poor area of the state, and it’s a very economically depressed area.”

Ellen can claim the same level of faculty support that Grace does. Her workshops are well attended. She responds to faculty PD requests and does her best to offer sessions that align with them, and she says faculty are appreciative. She does receive the same level of support from her administration. Her budget was cut the previous year by almost 70% and it has yet to be restored even though her PD programming has grown by 300%. She doubted that it would ever be restored. She says she often thinks,

Why am I doing this? I should just go back to the faculty. Clearly, it's not a priority to the administration. Our budget...before it was cut, was already much, much, much lower than somebody like [a sister university in our system].

Ellen is also disconcerted when deans approach her for PD requests for their faculty and she is unable to fulfill their requests. She agrees that the programs they suggest would be good for faculty, but she does not have even the smallest amount of money to bring them to fruition.

Again, like Grace and Ellen, Walter and John are faced with faculty who are appreciative of their PD efforts. Their university is large, and the faculty they work with vary, though most tend to be tenured faculty members. However, they report the faculty they do reach with their PD efforts are excited to work with them. With such a large university come many layers of administration across the many colleges and departments of the institution. In speaking of administrator support, Walter said, "I think it really depends on the administrator and the college." Support also depends on if you are tenured or not. Walter mentioned that the university places more emphasis on research rather than teaching for new tenure track faculty members. John mentions a new provost at the university that is working on providing PD programs for faculty, but he is unsure of which type of faculty (tenured, tenure track, non-tenure track) they will target and how they will count in their annual reviews. John says, "She's putting together some new initiatives, so they seem to be committed to providing faculty those options, but are those options actually reflected in your annual review? This will vary greatly by college."

## Teaching Online

When speaking about teaching online courses Grace, Ellen, and Walter all had ideas about how faculty should be prepared. They all agreed that some sort of PD program was needed to properly prepare faculty for the technical and pedagogical challenges of teaching online. Grace again was pushing for a mandated PD program for any faculty member wishing to teach online. Her reasoning was that the online instructional modality was so different from teaching face-to-face, that no matter the faculty experience level, “Teaching in the classroom does not prepare you to teach online.” She expected her administration will soon attempt to push through policies that mandate PD for faculty wishing to teach online.

Ellen’s university has a sizeable online student population, and as a result, has several policies in place to guide the development and delivery of online courses. Ellen does not see these policies as effective ways to produce online instruction and prepare faculty for teaching online courses. Ellen would like to bring in content from an outside vendor to better prepare her faculty to teach online. She mentions a nationally recognized online teaching certificate aimed at higher education. She says, “It’s a 25-module effective teaching practices course. It’s national and lots of other schools are doing it.” While she acknowledges that other universities have had great results from the program, she is getting no traction to bring it to her university due to a lack of budgetary support. She says such program is necessary because their current practices are not providing online courses of a consistent quality: “There’s a wide range of quality in those courses. It’s very inconsistent, and some of them are just terrible, I think.”

While online teaching came up several times during Grace and Ellen's interview, it was mentioned only once with Walter and John. Citing inconsistent quality in online courses, Walter said he would like to follow the model of another university where faculty, "actually have to take an online course and go through their certification. Because if you're going to teach online, you should know how to be a student online, too." Walter asserts that they need some mandatory program in place that every faculty member will go through if they are to teach online.

### Summary

In this chapter, the quantitative data and qualitative data were analyzed. The quantitative data was analyzed through descriptive methodology in SPSS along the constructs of the TAM2. Frequency table and histograms of the results were produced and discussed. The qualitative data was coded and the categories that emerged aligned to any Research Question to which they were related. The survey data were used as a method to gather secondary data on PD leaders' perceptions of their faculty members' technology acumen, ability, and acceptance. The coded and analyzed qualitative data was used to further illustrate additional perceptions of PD leaders about their faculty members and the picture of general PD and PD for learning technologies at public four-year universities in Texas. The next chapter will discuss any implications of the findings of this study, as well as address its limitations. A call for future research for PD for higher education faculty with regards to learning technologies will also be discussed.

## CHAPTER 5

### DISCUSSION AND RECCOMENDATIONS

#### Introduction

This study was exploratory in nature, with the researcher hoping to establish a baseline of what is currently happening in faculty professional development (PD) for learning technologies at public four-year universities in Texas. It is hoped with a PD baseline established that norms and deficiencies might be identified to better aid faculty with their integration of learning technologies into their instruction. This chapter reviews the purpose of the study, the methodology that was used, a summary of findings, a consideration of the study's limitations, conclusions, and recommendations for future research.

PD for higher education faculty members has gone through a constant evolution—from a specific focus on their scholarly work, to their instructional work, and up to a need for a program of PD that supports the myriad systems and infrastructures provided for faculty in their academic life (Sorcinelli et al., 2005). Today's higher education faculty member is no longer expected to solely focus on research and publication, but rather become a more holistic professional who also engages in teaching and service (Ouellett, 2010). The systems of PD support faculty engage with are numerous and vary in name and structure across the various institutions, but most adhere to the same general theme and can be broadly termed Center for Teaching and Learning (CTL). CTLs are charged with providing faculty with PD opportunities and improving their academic skills (Schumann et al., 2013). Though discontinued financial support for CTLs is a constant threat, CTLs are a crucial part of most universities future

plans as universities face increasing accountability measures to show their students are meeting the learning outcomes required by their accrediting bodies, which now include 21<sup>st</sup> century skills (Schroeder, 2012). While faculty are expected to help students meet the presented objectives, they are also increasingly expected to do so using learning technologies, and as such their pedagogical practices will need to adjust (Akbar, 2016). Preparing students for jobs in the 21<sup>st</sup> century is an issue and that involves jobs that require technology skills, which some faculty are not well prepared to support. Consequently, a CTL can play a vital role in helping faculty prepare students.

The New Media Consortium's Horizon Report notes the challenge of supporting faculty in the use of new learning technologies and that the role of the faculty member is changing, with faculty expected to use these learning technologies to drive student-centered teaching approaches (Adams Becker et al., 2017; Becker et al., 2018). What is currently being done to support faculty during this time of transition, when administrations increasingly value teaching over research (Adams Becker et al., 2017)? CTLs are in place at many institutions, but there is a general lack of uniformity in their execution and mission. Even if the institution does not specifically have a center, there is generally a PD leader in charge of providing support to faculty. There seems little known of the PD structures and systems in place at universities that are meant to provide faculty with PD for learning technologies.

The research study sought to answer three questions:

1. What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state-supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty?
2. To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to



- accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution?
3. To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions?

### Summary of Findings

The purpose of this research study was to determine the current state of faculty PD in preparing Texas faculty in the effective use of learning technologies. The researcher was seeking to establish a baseline of what currently exists, with regard to PD in Texas. The research population consisted of PD leaders at representative four-year public universities in Texas. An electronic survey was used to gather quantitative data for the research study. Twenty-six PD leaders from 22 universities. The survey was adapted and revalidated with permission from Park's (2009) existing survey. Park's survey was aligned to the second iteration of the technology acceptance model (TAM2), a model that helps predict end-user technology system use. The TAM2 survey was aligned along the primary constructs of Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude (AT), Behavioral Intention (BI), Learning Technology Self-Efficacy (LTSE), and Subjective Norm (SN). Park included a seventh variable in the original survey not directly aligned with the TAM2. This variable was System Accessibility (SA) and was kept because it could aid in providing a better picture of learning technology usage at the universities studied. SPSS was used to generate descriptive statistics for each construct using variables created from the median of the responses to the aligned questions. Frequency tables and histograms were produced for each construct measured.

Semi-structured interviews were used to gather qualitative data and were conducted with four participants from three universities who also engaged with the survey. Out of the 26 participants who took the survey, these four PD Leaders were the only ones willing to schedule and subsequently follow through with the interview. The interview transcripts were then analyzed and coded based on emerging patterns in the text. Color coding was used in order to identify the present categories. This process was performed multiple times and the detected codes refined each time. Through the use of pattern coding, eight categories resulted from the semi-structured interview responses—(1) Level of Support, (2) Culture Change, (3) Preparation to Teach, (4) Teaching Online, (5) Faculty Openness to PD, (6) PD Integration, (7) Use of Technology, and (8) Academic Freedom. Each category was examined to see if it would or would not align with the research questions (RQs) of the study.

### Research Question 1

What are the perceptions by leaders of centers for teaching and learning (or equivalent stakeholder) at four-year, state supported institutions of higher learning in Texas of the current state of professional development design and delivery systems for faculty?

Two categories detected in the patterns gleaned from the semi-structured interview data aligned with Research Question 1. PD leaders noted both the integration of PD across their campus, as well as how prepared faculty are to teach when they enter the university. Teaching preparation could be contributed to either their course work while earning their terminal degree or PD they might have been offered as graduate students. Out of the four interview participants, only one, Grace, did not mention PD Integration. This is likely because Grace is the only person at her university responsible for PD because of its small size and limited funding. Ellen made clear the

divide between her own center's PD programs and her university's distance education department (DED) PD programs. She said there was talk of an integration between her center and the PD branch of the DED but nothing had come to fruition. Ellen made clear the frustration she and her faculty felt at the level of support she received concerning learning technologies. She even began offering PD sessions over learning technologies due to faculty demand. Walter and John work at two separate centers at the same university, with Walter's center focused on teaching practices and John's on technology. They admit to overlapping services, but they feel that such overlap is of little consequence because of the sheer number of people they are expected to support. They make an effort to collaborate whenever possible. At Ellen's university the lack of integration is a source of frustration. Walter and John see their lack of integration as a plus that allows them to provide overlapping services that accommodate more faculty.

While the integration of PD across the university more directly speaks to what PD leaders perceive of the PD systems at their campus, faculty preparation to teach is less directly related to their own university's PD efforts. It seems more reflective of the state of PD programs or degree curriculum for those expecting to become higher education faculty of higher education as a whole. All participants discussed the level of teaching preparation for new faculty members. Grace mentioned that most faculty she works with are not prepared to teach, noting they are experts in a field other than instruction unless they are in a major involving pedagogy. Ellen, too, thinks faculty are ill prepared to teach coming out of graduate school. She specifically notes a new faculty member that she observed who was confident in the content he was presenting, but wholly unprepared in the ways of proper instruction and engagement. Walter noted that because he and John

work at a Research One University, administration has told them that focusing on teaching rather than research can be detrimental to a new faculty member's career.

## Research Question 2

To what extent is having an active center for teaching and learning (or equivalent stakeholder) at an institution a predictor of faculty willingness to accept new learning technologies (hardware, software, or service-driven systems) purchased by the institution?

The descriptive statistics generated from the survey data show that PD leaders generally perceived their faculty members to have the qualities necessary to accept new learning technologies. For Perceived Ease of Use, Perceived Usefulness, Attitude, Learning Technology Self-efficacy, and Subjective Norm over 50% of the respondents somewhat agreed, a positive reaction, with the questions aligned to the related construct. PD leaders saw faculty as generally having enough computer self-efficacy, a positive attitude towards technology, and a belief that technology was held in high regard in the work place. The only construct with less than a 50% positive response was Behavioral Intent. Behavioral Intent involves an individual's future intention as related to use. The more evenly distributed responses for this construct may be caused by asking participants to impose judgement on a group's future intention rather than render a judgement on a group's skill set or general attitude. Predicting the future seems a more difficult proposition than evaluating the current norm. Though PD leaders generally see faculty as having the means to accept these new technologies, the seventh construct in the instrument concerning system accessibility indicates there may be issues with faculty having access to the technologies. Fifty percent responded negatively to the idea that faculty have an easy time accessing learning technologies.

Two categories detected in the patterns gleaned from the semi-structured interview data aligned with Research Question 2. Both categories were related to faculty choice and attitude. Grace and Ellen's interview responses showed that faculty want choice. At Grace's university faculty leveraged academic freedom as a method to push back against mandated PD. While she felt that mandatory PD would be of benefit to faculty, they were less willing to engage with it. Ellen, who is a fully tenured faculty member took an opposite approach, with everything done by her center offered to faculty on a voluntary basis. Ellen, in fact, specifically mentioned another body at her university that engaged in mandatory practices related to online course development and said that such initiatives felt like a factory approach to instruction. Ellen supported academic freedom. It is likely that if faculty have a choice, they are more willing to engage with an offered technology.

Faculty openness to PD also supports their willingness to accept new learning technologies. Grace points out that non-mandatory PD sessions were well attended by faculty and that newer faculty are very willing to engage with technology and implement it into their instruction. Ellen too said she had good attendance and was able to grow her PD programming over 300% the last few years, but Ellen is more reticent when it comes to faculty and technology. She says faculty are often scared of adding more to an already full schedule and can be daunted by new technology. Walter and John find that faculty openness toward PD is often the result of the faculty's background. They may come from a country with little technical infrastructure and so are less willing to engage with the technology or, counter to that, more willing to engage because they are excited to work with what is new. The interview responses showed that choice seems to

factor highly into faculty openness with PD. The workload of the faculty member should be considered as should their background in order to facilitate engagement.

### Research Question 3

To what extent are centers for teaching and learning (or equivalent stakeholder) preparing faculty in the effective use of new learning technologies (hardware, software, or service-driven systems) purchased by institutions?

Four categories were found to align with Research Question 3—culture change, use of technology, level of support, and teaching online. All four categories illustrate how faculty are being prepared to use learning technologies at these universities. It seems a sometimes unfocused or even contentious endeavor with support and approaches varying by university.

Here, culture change is indicative of the culture of the university having changed or needing to change with regards to PD and learning technologies. Grace wanted to see mandatory PD sessions become the norm on her campus despite the pushback she received from her faculty. As a tenured faculty member, Ellen felt counter to Grace's views of mandatory PD. She instead thought that her university's mandatory practices concerning online course development lent the act of teaching online a factory feel. Walter and John's culture issues are those inherent to a large university. They had difficulty tracking faculty innovation and practices across the university.

Concerning the use of technology, Grace, counter to her earlier calls for mandatory PD, felt that technology use cannot be forced. Ellen mentioned that some technologies at her university are mandated, but not well supported, or she is at least unaware of support available for the technologies. Walter and John said the size of their university does not allow them to easily know which technologies are available for

faculty to use. They mentioned a specific instance of a department that purchased a technology and then the university purchased the same technology system. They claim this is indicative of an issue with technology coordination at the university.

Level of support speaks to support PD leaders receive from both faculty and administration. All participants reported that faculty were generally supportive and appreciative of their PD efforts. Grace noted that all non-mandatory PD sessions were well attended and rated highly. Grace also said that her administration is supportive of her efforts and works to clear budget space for her PD-related requests. Ellen's administration slashed her budget by 70% and had yet to restore it. She questioned why she continues to work in her center with her current level of support rather than return fulltime as a faculty member. Walter and John both said support is dependent on the administrator and the body to which they belong at the university. Also, because of the university's focus on research, it is unclear how PD for teaching and learning technologies would factor into tenure and promotion.

Teaching online was mentioned in all the interviews. Grace wanted mandatory PD for any faculty member wishing to teach online and was expecting administrative support to help her push the initiative through. Ellen had mandatory practices in place with regards to teaching online at her university, but she wanted to bring in a more pedagogically driven approach. She mentioned a 25 module effective teaching practices course produced by an outside vendor. Walter mentioned the unevenness in quality of their own online courses and wanted to see some sort of mandatory certification course in place for those teaching online.

## Limitations

One limitation of the study was the use of the TAM2 as a method of gathering quantitative data. The TAM2 is generally used to gather primary evidence related to acceptance and use from end-users of a particular technology system. In this instance the TAM2 is used to gather secondary evidence about the end-user of a broad spectrum of learning technologies from those charged with preparing PD for them. The research study is therefore asking PD leaders to make judgements on another group's facility with technology at their respective universities. This was particularly problematic when concerning Behavior Intent, where the relatively even distribution of responses showed some may have had difficulty determining another person's intended behavior. The other TAM2 constructs did not display the same pattern in the frequency tables. The examined literature showed no other instance of the TAM2 used to gather secondary evidence.

The demographic questions showed that 92% of the participants had served as faculty members in some capacity, with 52% holding a rank of Assistant Professor or higher. Since so many of the PD leaders have their origins as faculty members, it is assumed that they are familiar with the faculty they are tasked with serving. While they might be familiar with their roles as faculty members, they may not be familiar with their faculty members' technical acumen and proclivities.

Prior to this research study, it was assumed that CTLs at the universities would be involved with or have knowledge of PD related to learning technologies. The demographic questions showed that 58% claimed responsibility for providing PD concerning learning technologies. Thirty-eight percent shared this responsibility with



another department at the university and 38% said they were directly charged with PD related to learning technologies. The mixed response indicated there may be multiple entities outside the research population that were not considered. All four interview participants mentioned providing PD for learning technologies in some capacity.

Thirty-three universities met the criteria of the research study. Twenty-six PD leaders from 22 universities participated in the survey. Only four PD leaders from three universities agreed to participate in the semi-structured interviews resulting in a very small number of follow-up interviews. Also, there is no data present for faculty who may be involved in any future studies. The research is also limited to the state of Texas. There is no other data present for other states or countries. Because of this relatively small sample size and the study's limitation to public four-year universities in Texas, the ability to generalize the results should be limited to the research population.

To increase the reliability of the qualitative data, multiple raters should be used during the coding and categorization process. This research project only utilized a single rater when working with the data. Future research projects involving PD and higher education faculty should use multiple raters when working with qualitative data.

### Conclusion and Future Study

The focus of the research study was to establish a picture of the current state of PD for higher education faculty in the state of Texas, and to see how PD leaders were preparing faculty in the use of learning technologies at their universities. The study showed that PD practices vary from university to university and PD leaders face challenges related to funding, administrative support, and a clear understanding of PD responsibilities between the various PD support structures across a university. PD

leaders generally felt that faculty had the technical facility to work with and accept learning technologies at their respective universities. They also felt faculty were appreciative and engaged with PD presented to them. The interviews showed mandatory PD was not well received by faculty, though some PD leaders felt its benefits outweighed any perceived stigma. Delivery of PD focused on incorporating learning technologies into faculty instruction was discussed by PD leaders but not the efficacy of faculty implementation. Measurement of the efficacy of learning technologies implementation was not mentioned by any of the PD leaders in interviews or the open response questions in the survey and did not seem to factor into the design and delivery of PD at the participants' universities.

#### Faculty Implementation

PD leaders are presenting faculty learning technology-focused PD, but there seems little regard as to the efficacy of faculty implementation of such technologies. Further research is needed to determine if faculty are effectively implementing technology into their courses. Tennyson's (1997) fourth-generation instructional design systems model (see Appendix A) is one design system that could be leveraged to help better implement technology into faculty instruction. This may be best accomplished through a longer-term study producing longitudinal data in order to compare student outcomes and achievement.

#### Mandatory Professional Development

Further study into mandatory PD at universities may also be of benefit. There seems a clear divide between those charged with delivering PD and the faculty they serve. The literature study for this research showed that faculty place value on

collaboration with their peers. They may feel a mandate could stifle elements of collaboration between peers and create a PD environment with a single voice. More study into the effects of mandatory PD on faculty adoption of technology tools and practices is needed to help establish best practices moving forward.

#### Wide-Scale Research for Professional Development

Future research should include faculty, as well as the PD leaders that work with them. In addition, more research is needed on a wider, global scale. This research study was limited to one type of university in the state of Texas. More research is needed to better establish what is being done for higher education faculty not just in Texas but in the United States, as well as internationally. How do those international PD systems differ from what is being done domestically?

#### Learning Technology Accessibility

The demographic questions also revealed a potential issue regarding faculty access of learning technologies at universities. Fifty percent of the PD leaders were doubtful that faculty had easy access to learning technologies at their university. Granting and facilitating access is generally outside the purview of most PD leaders. A more established baseline of technology access would be beneficial to those charged with delivering technology PD.

#### Improving Professional Development at Universities

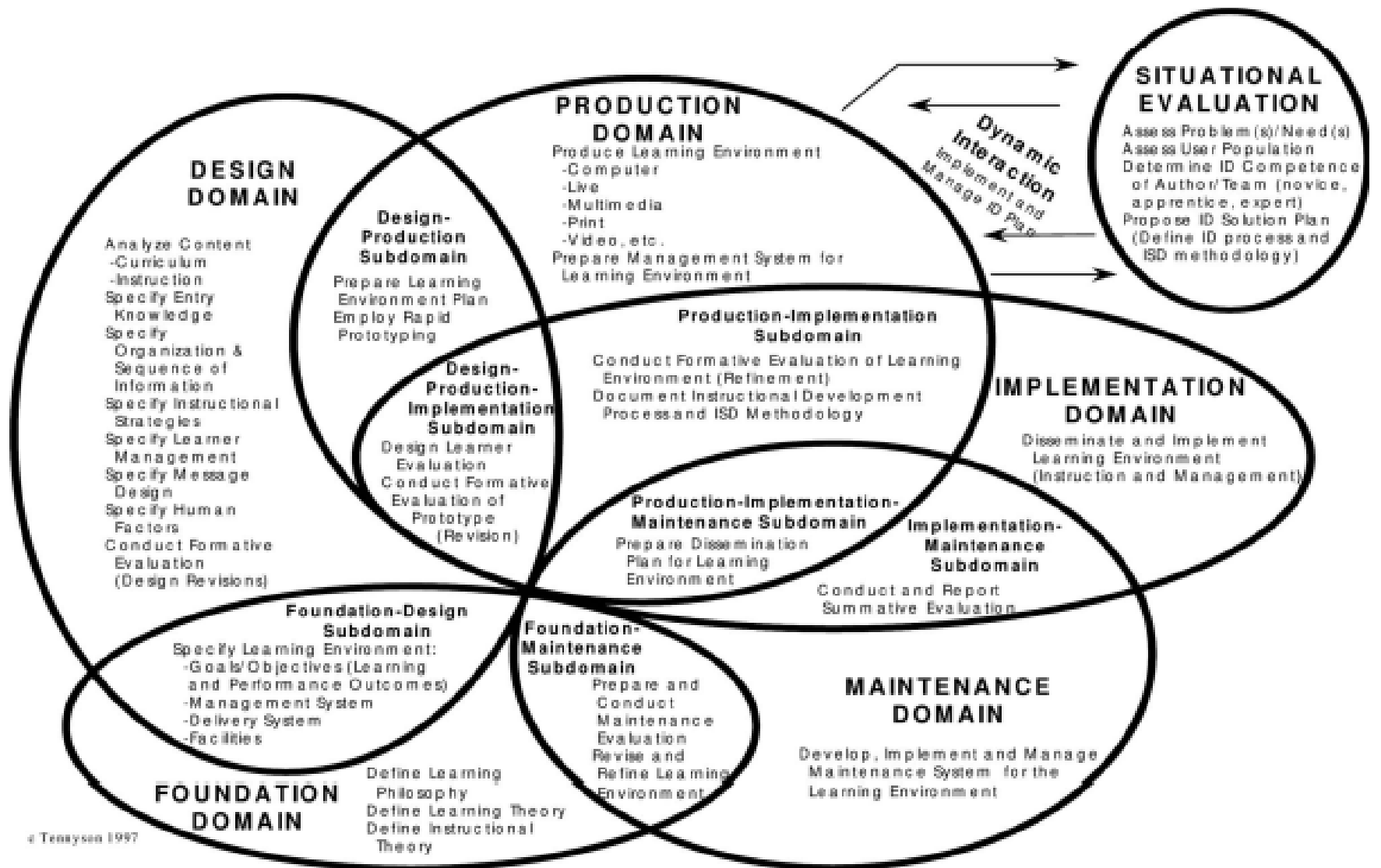
Ninety-two percent of the surveyed PD leaders claimed experience as faculty members. Their backgrounds as either current or former faculty members seems a crucial part of the success of CTLs as the literature review shows that faculty prefer

collaborating with their peers. Three out of the four PD leaders interviewed held a Ph.D. Holding a terminal degree and a similar faculty status as those they are charged with helping places them on similar professional footing and provides faculty with a peer with whom they can collaborate and engage concerning incorporating learning technologies into their own instruction.

Aside from having credentialed PD leaders heading up CTLs, universities would benefit from having a single PD voice on their campus rather than have multiple, siloed instances of PD across a university, as was the case with Ellen, as well as John and Walter's universities. Multiple CTLs or stakeholders that deliver PD can cause confusion. With PD flowing through a single entity, it would help eliminate duplication of services and provide faculty a clearer path to PD services they need.

Any of these proposed research studies could help further illustrate the picture of PD for higher education faculty members. While this research study has limitations, it does provide some insight into what is currently happening in this PD space. As universities continue to add new learning technologies to aid in student instruction, so too must they prepare faculty to integrate such technologies into their teaching in order to continue moving towards the student-centered learning approaches university administrations are currently favoring.

APPENDIX A  
TENNYSON'S MODEL



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APPENDIX B  
SURVEY QUESTIONS

The 7-point Likert scale was used with the 18 questions related to the TAM2 (Questions 1-18): 1 (strongly disagree), 2 (moderately disagree), 3 (somewhat disagree), 4 (neutral), 5 (somewhat agree), 6 (moderately agree), and 7 (strongly agree) First 18 questions adapted from Parks' (2009) work.

In the context of this survey, the term **learning technologies** is indicative of any system or tool that assists faculty in delivering, creating or facilitating instruction through a variety of means (face-to-face, hybrid, and online), which has been purchased by the institution for faculty use. Learning technologies at an institution may include, but are not limited to, LMSs (Blackboard, Canvas, Moodle, etc.), video hosting solutions, content creation tools (SoftChalk, or Adobe Captivate) or other technologies such as classroom clickers, online portfolio systems, and lecture capture.

1. Perceived ease of use: Our faculty find the learning technologies at this institution easy to use
2. Perceived ease of use: Our faculty have an easy time learning to use the learning technologies at this institution.
3. Perceived ease of use: It is easy for our faculty to become skillful at using learning technologies.
4. Perceived usefulness: Using learning technologies would improve our faculty's teaching and scholarship.
5. Perceived usefulness: Using learning technologies would increase the productivity of faculty's teaching and scholarship.
6. Perceived usefulness: Learning technologies could make it easier for our faculty to teach their classes.
7. Attitude: Our faculty think incorporating learning technologies into their instruction is a good idea.
8. Attitude: Our faculty think incorporating learning technologies into their instruction is a wise idea.
9. Attitude: Our faculty are positive towards the use of learning technologies at my institution.



10. Behavioral Intention: Our faculty intend to use the learning technologies at my institution frequently.
11. Behavioral Intention: Our faculty intend on being heavy users of learning technologies at my institution.
12. Learning Technology Self Efficacy: Faculty feel confident using learning technologies at my institution.
13. Learning Technology Self Efficacy: Our faculty have the necessary skills for using the learning technologies at my institution.
14. Subjective Norm: Learning technologies are important to faculty at my institution.
15. Subjective Norm: Our faculty believe their peers should utilize the learning technologies at my institution.
16. Subjective Norm: Administration supports our faculty in the use of learning technologies at my institution.
17. Subjective Norm: Learning to interface with learning technologies is important to our faculty's professional future.
18. System Accessibility: Our faculty have no difficulty accessing and using the learning technologies at my institution.

#### Demographic Questions

1. At which institution do you work?
2. How many years have you been at this institution?
3. How many years have you been involved in professional development for faculty?
4. Does your department oversee professional development for learning technologies at your institution?
5. Does your department work in conjunction with other departments on your campus to offer professional development opportunities to faculty?
6. Is your department responsible for providing faculty professional development on learning technologies?
7. Have you ever offered professional development to administrators or staff members or anyone outside of faculty?
8. What percentage of your work load involves faculty professional development?
9. Have you ever served as a higher education faculty member?

10. If you have served as a faculty member, what was your rank (Pick the rank that most closely matches those used at your institution)? Please leave this question blank if you have never served as a faculty member.
11. If you have served as a faculty member, how long did you serve? Please leave this question blank if you have never served as a faculty member.
12. What technologies available on your campus (if any) do you consider important for your faculty to incorporate into their instruction? Why or why not?
13. What are some specific likes or dislikes you may have about the way professional development for faculty members is handled on your campus?

APPENDIX C  
INTERVIEW QUESTIONS

1. Please tell me a bit about your professional and educational background as well as your role at this institution with regards to professional development for faculty members.
2. How would you describe your experience with learning technologies at this institution?
3. What is your experience as a teacher and/or researcher?
4. Can you speak to the level of support for professional development on your campus from both faculty members and administration?
5. What changes would you like to see implemented with regards to professional development for faculty engaging with learning technologies.
6. Why do you feel that some faculty embrace learning technologies while others are more reticent?
7. What are your faculty members' biggest concerns when it comes to incorporating learning technologies into their instruction?
8. Where do you see professional development for faculty in higher education heading in the future?

APPENDIX D  
RECRUITMENT EMAIL

# Kyle Boudreaux

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July 31, 2019

To Whom It May Concern:

My name is Kyle Boudreaux, and I am a Ph.D. candidate at University of North Texas in the Learning Technologies program. For my dissertation, I am researching professional development efforts at 4-year, state-funded universities in Texas, with a particular focus on professional development to prepare faculty in using learning technologies. I hope to gain insight into the perceptions of professional development by centers for teaching and learning leaders (or the equivalent department on your campus), to determine to what extent these centers and their staff affect faculty interaction with new learning technologies, as well as how these centers are preparing faculty in the effective use of new learning technologies.

As a leader in professional development on your campus, I request that you please complete the survey at this link ([LINK HERE](#)). It should take no more than 20-30 minutes of your time. Please forward the link to other professional development leaders on your campus (assistant directors, lead instructional designers, etc). I am also conducting interviews with no more than five participants. If you are interested and able to consent to an interview, please email me and I'll be happy to work around your schedule (the interview should take between 30-60 minutes).

I thank you in advance and look forward to your participation. Please let me know should you have any questions.

Sincerely,

Kyle Boudreaux

APPENDIX E  
INSTITUTIONAL REVIEW BOARD APPROVAL DOCUMENTS



THE OFFICE OF RESEARCH AND INNOVATION  
Research and Economic Development

September 24, 2018

Dr. Jonathan Spector  
Student Investigator: Kyle Boudreaux  
Department of Learning Technologies  
University of North Texas

Institutional Review Board for the Protection of Human Subjects in Research (IRB)  
RE: Human Subject Application #18-300

Dear Dr. Spector:

The UNT IRB has received your request to modify your study titled "The Current State of Professional Development for Higher Education Faculty: An Examination of Four-Year, State Supported Universities in Texas." As required by federal law and regulations governing the use of human subjects in research projects, the UNT IRB has examined the request to revise the data collection instrument by revising the wording of a few questions on the survey, and adding two open ended questions. The modification to this study is hereby approved for use with human subjects.

Please contact The Office of Research Integrity and Compliance at (940) 565-4643, if you wish to make changes or need additional information.

Sincerely,

A handwritten signature in black ink that reads "Shelley Riggs".

Shelley Riggs, Ph.D.  
Professor  
Chair, Institutional Review Board

SR:jm

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