UNDERSTANDING THE FACULTY EXPERIENCE OF TEACHING USING

EDUCATIONAL TECHNOLOGY AT PUBLIC RESEARCH UNIVERSITIES

IN THE ACADEMIC CAPITALISM ERA:

AN INTERPRETIVE CRITICAL INQUIRY

A Dissertation

by

ELAINE LINELL DEMPS

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ELAINE LINELL DEMPS

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ABSTRACT

Understanding the Faculty Experience of Teaching Using Educational Technology at
Public Research Universities in the Academic Capitalism Era: An Interpretive Critical
Inquiry. (May 2008)

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This interpretive critical inquiry was aimed at coming to understand the
experiences of faculty at research universities who teach using educational technology in
the present academic capitalism era, and how these experiences affect their job
satisfaction. The study was carried out in the South Central region of the US at two
research universities—University A and University B—of one university system.

Purposive sampling was used to select 10 tenured faculty members as study
participants. The data collection included ethnographic interviews, participant
observations, and document analyses and occurred over an 8-month period between
April and December 2007. The interviews were audio recorded, transcribed, and
analyzed using Lincoln and Guba's (1985) approach to content analysis.

Based on the themes and subthemes that emerged, the experiences of teaching
using educational technology seemed to yield positive end results that served as
rationales. However, the participants did experience obstacles such as time constraints,

steep learning curves, technical problems, and various pedagogical challenges. Those who seemed least burdened appeared to be those with the most departmental support.

The participants' experiences portrayed the professorship in the research university as an independent and autonomous position with a heavy work load and constant juggling of different tasks. The path to successful promotion and tenure appeared to be clearly marked by guidelines that require research productivity through external funds, an instance of academic capitalism. Teaching appeared to be secondary or tertiary in importance. Conflicts seemed to exist between the faculty and administrators in the utilities of teaching using educational technologies in terms of mismatched rationales or motivations, and therefore, mismatched outcome expectations.

The majority of the participants appeared to be very satisfied with their jobs. Even so, all ten stated they had turnover intentions to leave University A or B at one point or another in the past, although perhaps not the professoriate. Many said teaching using educational technology was personally satisfying. The conclusion includes implications to students, faculty, research universities, and HRD; recommendations for future research; and three working hypotheses.

DEDICATION

I dedicate this dissertation to my mother, Yong Soon Demps, my father, Amos L. Demps, my husband, Rosalio Lopez, Jr., my son, Matthew Demps Lopez, and my daughter, Elly Demps Lopez—my unconditional cheerleaders. I have reached the finish line of this race because all of you stood by me and cheered me on in your own individual ways. Thank you for your gifts of love.

ACKNOWLEDGEMENTS

Thinking about what to write in this section motivated me to persevere during those dim moments when the finish line seemed light years away. Now that I am here, I can understand why the other dissertation acknowledgements I have peeked at most often started by expressing gratitude to the committee members.

I was guided by an awesome committee of four really smart and encouraging women who held very high expectations for me. Dr. Susan A. Lynham—co-chair, program advisor, mentor, coach, and counselor—and Dr. Yvonna S. Lincoln—co-chair and *The Queen*, as we affectionately labeled her—provided invaluable direction and support. They helped me to stretch and expand my thinking, both during the coursework and dissertation stages, in ways I certainly would not have without their guidance. Dr. Lauren Cifuentes—committee member and the go-to person for all things educational technology and Dr. Kim Dooley—committee member and distance education guru— provided fresh insights and perspectives. While the oral preliminary exam, dissertation proposal hearing, and dissertation defense were anxiety-filled moments, I will miss their company and the engaging dialogues and discussions that resulted when four passionate scholars, experts in their respective fields, were in one room.

I had the divine fortune of starting, sharing, and finishing this journey with a fellow student, who is now *Dr.* Marilyn Byrd. In effect, she was my running mate. There were many days when I rather would not have run but seeing her suited up and ready to go prompted me to do the same. What a motivator she has been.

I am grateful to the five people who helped me to start this journey by writing support letters for me. One was a professor, Dr. Lisa Goldstein, from my previous attempt at a Ph.D. at the University of Texas at Austin. Three were colleagues and mentors at the University of Texas Health Science Center at San Antonio—Dr. Ken Andrews, Mr. Bill Hendricson, and Dr. John Littlefield. One was a colleague and mentor, also at the University of Texas Health Science Center at San Antonio, as well as a business partner, friend, and now godmother—Dr. Nancy Hudepohl. To all of you, I thank you for supporting and encouraging me to be on this journey.

Finally, I would like to acknowledge the 10 faculty members who volunteered to participate in my dissertation study. I imagine many researchers, for one reason or another, experience difficulties in finding and recruiting participants and my experience was no different. Without the 10 faculty members who so generously agreed to share a slice of their valuable time with me, completing this dissertation study would have been impossible.

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CHAPTER I

INTRODUCTION

Human resource development (HRD) is a young, interdisciplinary field of practice and study that is becoming and emerging as it grows (Lee, 2001; Swanson & Holton, 2001). An aim of HRD is to increase the effectiveness of individuals, work groups, work processes, and organizations by developing the human expertise that help meet the mission and goals of an organization, whether the organization is a corporation, educational institution, military group, church, family, community, nation, or world (Cho & McLean, 2004; Lynham & Cunningham, 2006; McLean, 2004; Swanson & Holton, 2001). Stated differently, HRD aims to develop the human capital—"the knowledge, expertise, and skill one accumulates through education and training" (Torraco, 2001, p. 109) for the purpose of carrying out the mission and goals in various forms of organizations.

An argument has been made not to define HRD so that it may continue to become and grow (Lee, 2001). Even so, numerous definitions of HRD exist today (Weinberger, 1998), some more limiting in scope than others. For example, this definition by McLagan offers a relatively narrow scope: "HRD is the integrated use of training and development, career development, and organizational development to improve individual and organizational effectiveness" (Swanson & Holton, 2001, p. 6).

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This dissertation follows the style of *Human Resource Development Quarterly*.

In contrast, the following definition by McLean and McLean (2001) is much broader:

> Human resource development is any process or activity that, either initially or
> over the long term, has the potential to develop adults' work-based knowledge,
> expertise, productivity and satisfaction, whether for personal or group/team gain,
> or for the benefit of an organization, community, nation or, ultimately, the whole
> of humanity. (p. 322)

A paradigmatic debate in HRD concerns whether the end result of HRD efforts should be to improve learning, performance, or both (Kuchinke, 1998; Swanson & Holton, 2001) in the domains of outcome that vary in scope from individuals and organization (per McLagan's definition of HRD), to individual, group/team, organization, community, nation, and humanity (per McLean and McLean's definition of HRD), to individuals, families, organizations, international organizations, communities, nation-states, world regions, and global entities (Lynham & Cunningham, 2006).

The philosophical metaphors of HRD include HRD as (a) organizational problem solver, (b) organizational change agent/interventionist or helper, (c) organizational designer, (d) organizational empower/meaning maker, and (e) developer of human capital (Watkins, 2001). From a relatively limited perspective, the theoretical foundations of HRD include the theories pertaining to psychology, systems, and economics (Swanson & Holton, 2001) or, from a broader perspective, the theories pertaining to people, process/systems, and performance (Lynham & Cunningham, 2006).

The expertise needed to carry out HRD comprises lifelong learning, career development, training and development, and organization development (Dooley, 2002;

Swanson & Holton, 2001). Lifelong learning can be defined as learning that happens throughout adulthood to fill a knowledge gap (Merriam & Caffarella, 1999); career development is "to plan and construct a pattern of training and learning experiences purposefully with an eye toward more holistic development around one's career" (Swanson & Holton, 2001, p. 209); training and development is "a process of systematically developing work-related knowledge and expertise in people for the purpose of improving performance" (Swanson & Holton, 2001, p. 204); and organization development is "directed at bringing about planned change to increase an organization's effectiveness and capability to change itself" (Cummings & Worley, 2005, p. 22).

Thus, one way to view HRD is as a field of practice and study aimed at bringing about change in people, through various forms of development, ultimately for the purpose of improving the people and the organization to which they belong. This dissertation study was about a particular form of organization—the public research university—and one group of people—tenured faculty or those on tenure-track—who belong to that organization. The study was directed at coming to understand the experiences of this particular group of people as they face two specific forms of organizational changes—academic capitalism and teaching using educational technology—that confront them.

The following sections in this introductory chapter provide a brief overview of the evolution of the American higher educational system, of which the public research university is a member, as well as a cursory description of the two forms of

organizational changes. The problem statement, research questions, definition of terms, and significance of the study complete the chapter.

The Evolution of the American Higher Educational System

The birth of the higher educational system in the United States of America (America, hereafter) was nearly four centuries ago, with the charter of Harvard College in 1636 (Boyer, 1990; Thelin, 2004). Since that beginning, the system has evolved significantly in regards to its purpose, students, funding sources, and professoriate.

Whereas the first colleges of the colonial and post-revolutionary era were established to develop—intellectually, morally, and spiritually—(a) the sons of wealthy families who could carry on the family profession or business, (b) the sons of select poor families, aided financially, who could improve their socioeconomic status by earning a respectable living, and (c) the members of the clergy who could serve their communities as learned men, the subsequent periods saw colleges and universities established to educate a wider base of students, to include women and blacks (Thelin, 2004). In the process, the curricular emphasis shifted away from the traditional British model of reciting classical texts, developing oratory skills, and cultivating mathematical abilities to a more pragmatic focus that included programs in agriculture, education, and engineering. Furthermore, the mid-nineteenth century introduced research and graduate education and specializations into the American higher educational system, as Americans who went abroad to Germany to earn their graduate degrees helped to import the German model (Boyer, 1990; Finkelstein, 1983; Thelin, 2004).

Meanwhile, the American higher educational system has seen a variety of funding sources over the years that included the local community, royal crown, federal subsidies, and affluent philanthropists. In the beginning, the colonial institutions were either funded by the local community through a portion of the annual taxes (e.g., Harvard), by the English royal crown (e.g., The College of William and Mary), as well as by English and American philanthropists (e.g., Harvard, The College of William and Mary, and Yale) (Thelin, 2004). With the 1862 Morrill Land Grant Act, the federal government provided non-recurring funds to the individual states by issuing large parcels of land from western America. The individual states could sell the land, typically to settlers moving west, and use the proceeds from the sale to build land-grant educational institutions. This funding method provided the participating states with funds to build universities and the federal government a mechanism to influence settling of unused lands in the west. In addition, the late nineteenth century saw an era marked by university building across America, as the "captains of erudition" (Thelin, 2004, p. 111), successful American mercantilists and industrialists, donated funds to build universities throughout the nation in states such as California, Illinois, and Tennessee.

The professoriate of the American higher educational system, likewise, has gone through discernible transformations. In the beginning, young, male tutors, sons of well-to-do families, comprised the teaching force (Finkelstein, 1983). Until the mid-eighteenth century, these tutors typically stayed temporarily at an institution, although in theory, they were to guide a cohort of students throughout the students' baccalaureate years. The more permanent members of the professoriate came into being closer to the

nineteenth century. Scholarly publishing and disciplinary specializations began as early as the mid-nineteenth century. The ranked professoriate of assistant to full professorship, as we know it today, began around the latter part of the nineteenth century.

What can be surmised by the above quick tour of the American higher educational system in terms of its purpose, students, funding sources, and the professoriate, is that the system has experienced constant change. Perhaps, then, it is no surprise that the system faces yet more changes today that include academic capitalism (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2005) and teaching using educational technology (Gumport & Chun, 2005; Privateer, 1999).

Academic Capitalism

Academic capitalism (Slaughter & Leslie, 1997; Slaughter & Rhoads, 2005), also referred to as the *entrepreneurial university* (Etzkowitz, 2004; Etzkowitz, Webster, Gebhardt, & Terra, 2000), or simply, the *market-oriented university* (Häyrinen-Alestalo & Peltola, 2006), is described as higher educational institutions, worldwide, exhibiting and taking part in market-like activities: "Many see the universities becoming more attuned to market forces, re-engineering themselves to become more efficient, while investing more in areas that attract earnings-conscious students and private research support" (Brint, 2005, p. 23). Because they are synonyms, for the purposes of this study, the label *academic capitalism* will be used to represent the concept of higher educational institutions taking part in market-like activities.

Teaching Using Educational Technology

Teaching using educational technology is another change sweeping through higher education today (Gumport & Chun, 2005; Privateer, 1999). "Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski, 2006, p. 10). For example, educational technology as a resource can be a human patient simulator that includes a mannequin and software for teaching techniques on administering anesthesia (Forrest & Taylor, 1998), a multimedia instructional software for developing endodontic diagnosis skills (Littlefield et al., 2003), or "web-based modules to teach data collection and analysis skills" in the field of social work (Umble & Dooley, 2004, p. 86).

The results of the 2006 National Survey of Information Technology in U.S. Higher Education (The Campus Computing Project, 2006) indicated that integrating technology for instructional use (i.e., integrating educational technology) was the second single most important information technology issue in higher education, making it either the first or second most important issue during the years 2000 and 2006. Similarly, the results of the 2007 EDUCAUSE Current Issues Survey (Camp, DeBlois, & the EDUCAUSE Current Issues Committee, 2007) specified that these various educational technology issues are among the top ten of most critical information technology (IT) challenges facing the IT campus leaders: course/learning management systems; electronic classrooms/technology buildings/commons facilities; e-learning/distributed teaching and learning.

While educational technology is by no means a panacea for all teaching and learning problems, not only can it be a useful tool and resource (Bates & Poole, 2003), it can help engender "first-rate learning environments"(Privateer, 1999, p. 62) and may facilitate social inclusion when factors contributing to digital divide are effectively addressed (Amiel, 2006; Warschauer, 2002). However, teaching using educational technology presents multiple barriers to faculty members, including the large amount of time needed to learn to use the tools and develop learning resources (Beggs, 2000; Groves & Zemel, 2000; Jacobsen, 1998). Furthermore, the compensation system for faculty in higher education seems to place less significance on teaching and more on scholarly publishing and the "ability to obtain external grants" [i.e., practice academic capitalism] (Sutton & Bergerson, 2001, p. 8). Meanwhile, more faculty members in higher educational institutions "are being exhorted to integrate technology into their instructional activities [i.e., integrate educational technology]" (Bennett & Bennett, 2003, p. 53).

Problem Statement

Public research universities are experiencing a major transformation today as they become more entrepreneurial and engage in academic capitalism (Bok, 2003; Slaughter & Rhoades, 2004). As a result, faculty members at research universities are increasingly rewarded for gains made from external grant funding and research publications than through teaching (Hearn & Holdsworth, 2002; Sutton & Bergerson, 2001). "One can imagine a university of the future tenuring professors because they bring in large amounts of patent royalties …" (Bok, 2003, para. 3).

At the same time, faculty members in higher educational institutions are pushed to integrate educational technology into their teaching (Bennett & Bennett, 2003). However, teaching with educational technology presents many first- and second-order barriers (Ertmer, 1999, 2005) such as (a) time constraints, (b) equipment access/availability/reliability issues, (c) lack of training support, (d) mismatched faculty reward structure, (e) expertise constraints (lack of expertise in educational technology), (f) lack of technical support personnel, and (g) the perception of lack of evidence that educational technology is effective (Beggs, 2000; Butler & Sellbom, 2002; Dooley & Murphy, 2001; Ebersole & Vorndam, 2002; Groves & Zemel, 2000; Jacobsen, 1998; Leong, Baldwin, Usatine, Adelman, & Gjerde, 2000; Muilenburg & Burge, 2001; Shim & Shim, 2001; Weston, 2005).

Faculty members at research universities today appear to face at least these two conflicting demands: (a) to be productive awardees of externally funded research grants and (b) to integrate educational technology into their teaching repertoire, an activity that presents many barriers. Furthermore, although some policy makers, university administrators, faculty, and students have set the expectations that educational technology in higher education can increase efficiency, access, and quality in teaching and learning, most of these expectations appear to not have been met (Amiel, 2006; Gumport & Chun, 2005). Since faculty members are major stakeholders in the endeavor to teach using educational technology, understanding their experience may be one approach to realizing why these expectations are not being met.

Purpose of the Study

The purpose of this interpretive critical inquiry was to (a) understand the experience of faculty at public research universities who teach using educational technology and their perception of how the demands of two apparently conflicting requirements affect their job satisfaction as professors; (b) based on the findings, offer suggestions and recommendations for organizational change that will serve to alleviate the conflicts faculty may experience, and (c) identify the implications for HRD in public research universities in terms of addressing academic capitalism and teaching using educational technology.

Research Questions

The following three research questions guided me in coming to understand the faculty experience at a public research university in teaching using educational technology, how this experience has affected them in general, and how this experience has affected their job satisfaction in particular.

1. What is the experience of faculty members who teach using educational technology at a public research university?

2. How is the experience affecting them as more demands are placed on faculty to obtain external research funds?

3. How is the experience affecting their job satisfaction?

Definition of Terms

Academic capitalism is a phenomenon occurring throughout the world where institutions of higher education engage in enterprising and marketable activities for the purpose of generating funds for the institutions through their research capacities and also by commodifying education (Bok, 2003; Brint, 2005; Deem, 2001; Etzkowitz, 2004; Etzkowitz et al., 2000; Geiger, 2004; Häyrinen-Alestalo & Peltola, 2006; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004, 2005).

Career development is "to plan and construct a pattern of training and learning experiences purposefully with an eye toward more holistic development around one's career" (Swanson & Holton, 2001, p. 209).

Educational technology is "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski, 2006, p. 10).

Entrepreneurial university is another term used for academic capitalism.

Human capital is "the knowledge, expertise, and skill one accumulates through education and training" (Torraco, 2001, p. 109).

Human capital theory explains the economic gain achieved at the individual, organizational, or societal level through investment in the human capital (Becker, 1992; Sweetland, 1996; Schultz, 1961; Torraco, 2001).

Human resource development is "any process or activity that, either initially or over the long term, has the potential to develop adults' work-based knowledge, expertise, productivity and satisfaction, whether for personal or group/team gain, or for

the benefit of an organization, community, nation or, ultimately, the whole of humanity

(McLean & McLean, 2001, p. 322).

Instructional technology is "the theory and practice of design, development,

utilization, management and evaluation of processes and resources for learning" (Seels

& Richey, 1994, p. 1).

Job satisfaction is "simply how people feel about their jobs and different aspects

of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction)

their jobs" (Spector, 1997, p. 2).

Lifelong learning is learning that happens throughout adulthood to fill a

knowledge gap (Merriam & Caffarella, 1999).

Organization development is "directed at bringing about planned change to

increase an organization's effectiveness and capability to change itself" (Cummings &

Worley, 2005, p. 22).

Research university is "an institution devoted mainly to research and graduate

studies (which are intended to train future researchers)" (Steffensen, Rogers, &

Speakman, 1999, p. 95).

Training and development is "a process of systematically developing work-

related knowledge and expertise in people for the purpose of improving performance"

(Swanson & Holton, 2001, p. 204).

Significance of the Study

Some of the expectations for educational technology in higher education include increased opportunities for non-traditional students to participate in formal education through distance learning (Rice & Miller, 2001) and "digital pedagogies," new teaching and learning strategies that are possible because of what technology allows (Privateer, 1999, p. 61). However, faculty members face many barriers in teaching using educational technology (Beggs, 2000; Butler & Sellbom, 2002; Dooley & Murphy, 2001; Jacobsen, 1998; Ebersole & Vorndam, 2002; Groves & Zemel, 2000; Leong, Baldwin, Usatine, Adelman, & Gjerde, 2000; Muilenburg & Burge, 2001; Shim & Shim, 2001; Weston, 2005). Therefore, they may not be motivated to invest their time and effort to become educators who teach using educational technology, especially when, in general, efforts spent on teaching is rewarded less than the efforts spent on producing scholarly publications and garnering external grants (Sutton & Bergerson, 2001).

I expect that the findings will (a) inform the administrators of public research universities in developing effective policies on teaching using educational technology that lessen the burden and negative job satisfaction faculty members may experience as they try to teach using educational technology in the academic capitalism era; (b) serve as a scholarly resource to faculty members who advocate a change to their reward systems so that efforts spent teaching using educational technology are recognized; and (c) add to the literature on how the barriers to teaching using educational technology can be overcome in order to realize the potential benefits of teaching using educational technology.

Organization of the Dissertation

This dissertation is organized into five chapters, a reference section, and appendices. Chapter I: Introduction, the current chapter, provides a brief overview of the problem as well as the purpose of the study, research questions, definition of terms, and significance of the study. Chapter II: Literature Review, offers a review of literature on academic capitalism, educational technology, and job satisfaction, three constructs germane to this study. Chapter III: Methodology, details the underlying theoretical paradigm of this study as well as the research strategies, participant and site selection, data collection and analysis, and trustworthiness of the study. Chapter IV: Data Analysis and Findings, describes the findings from the analysis. Chapter V: Conclusions, Implications, and Recommendations provides conclusions, implications of the results, and recommendations for future studies. Following the fifth chapter are the list of references and appendices.

CHAPTER II

LITERATURE REVIEW

The constructs germane to the inquiry described in this proposal are academic capitalism and educational technology. In addition, a related construct is faculty job satisfaction, for one way to distill the phenomenon of faculty teaching using educational technology in an academic capitalism era is from the perspective of faculty's job satisfaction. Therefore, this section offers the review of literature on these three constructs and how they inform the study:

1) Academic capitalism—what is academic capitalism and how does academic capitalism positively and negatively affect the students, faculty, and enterprise of public research universities?

2) Educational technology—what is educational technology, what is the rationale for and against teaching using educational technology, and what are the barriers?

3) Job satisfaction—what are the factors reported as being important to job satisfaction?

Academic Capitalism

The purpose of the review of literature on academic capitalism is to explore the phenomenon of academic capitalism and its effects on public research universities by examining its origins and characteristics, as well as its pros and cons. Two questions guided the review: (a) What is academic capitalism? and (b) How does academic capitalism positively and negatively affect the students, faculty, and enterprise of public

research universities? Furthermore, these questions were asked in the light of today's "venerable trio" (Geiger, 2004 p. 140) of the mission of the American public higher educational institutions: teaching, research, and service (Jaeger & Thornton, 2006). The remainder of this section is a response to the above two questions.

<div align="center">*What Is Academic Capitalism?*</div>

The aim of asking this question was to identify how academic capitalism is *defined*, how it *originated*, how it *evolved*, how it is *carried out*, and what are its *variant perspectives*. The paragraphs that follow address these sub-questions.

Definition of Academic Capitalism

Academic capitalism (Slaughter & Leslie, 1997), and its numerous synonyms such as entrepreneurial universities (Etzkowitz, 2004; Etzkowitz, Webster, Gebhardt, & Terra, 2000), market-oriented universities (Häyrinen-Alestalo & Peltola, 2006), entrepreneurialism in universities (Deem, 2001), and privatization of higher education (Devaney & Weber, 2003), is a worldwide phenomenon whereby institutions of higher education engage in a variety of enterprising and marketable activities aimed at generating funds for the institutions chiefly through their research capacities (Bok, 2003; Brint, 2005; Deem, 2001; Etzkowitz, 2004; Etzkowitz et al., 2000; Geiger, 2004; Häyrinen-Alestalo & Peltola, 2006; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004, 2005). The phenomenon is worldwide in that it can be found across the globe in at least these countries: America, Australia, Brazil, Canada, Finland, Germany, Italy, Japan, Sweden, and the United Kingdom.

The academic capitalist activities most often mentioned pertain to the "commercialization of research" (Slaughter & Rhoades, 2004, p. 137) and include higher educational institutions seeking out federally and industrially funded research projects; patenting discoveries and innovations; forming technology transfer offices; setting up business incubators; and developing research parks. These activities can be viewed as the components of academic capitalism and will be described later in this section.

Origins of Academic Capitalism

The origin of academic capitalism is linked to universities taking on externally funded research at least as far back as the nineteenth century (Geiger, 2004). While some universities (e.g., Massachusetts Institute of Technology) became more involved in academic capitalism in the early part of the twentieth century, by World War II, academic capitalism was a common occurrence at a larger number of universities, and this occurrence continued to grow throughout the Cold War era. At least three reasons can be attributed to the phenomenon of the universities having played a part in academic capitalism. First, universities possessed (and still do) the human capital of faculty who could extend the research capabilities of industry and government (Geiger, 2004). Second, the opportunities to conduct research not only addressed the research mission but also served as "prestige maximizers" (Slaughter & Leslie, 1997, p. 17), or how a faculty member could distinguish himself or herself from the rest who could not conduct research due to lack of funding, and in turn, how an institution could build stature from scholarly publications resulting from the research (Geiger, 2004). Third, even from the beginning, universities were viewed as engines for regional economic development

(Etzkowitz, 2004; Feldman & Desrochers, 2003). The following five paragraphs provide a brief chronological overview of the early entrants into academic capitalism.

Geiger (2004) dates the externally funded research efforts at the universities as far back as the nineteenth century, when "organized research units" (ORUs) were established with an "autonomous research role" (p. 140), which meant research needs by external patrons exceeded the triumvirate university mission of teaching, research, and service, and therefore, separate research units with much autonomy were established. Geiger lists "astronomical observatories, museum collections, and agricultural experiment stations" (p. 140) of the nineteenth century as examples of ORUs.

Slaughter and Leslie (1997) and Etzkowitz (2004), however, state that early incidences of academic capitalism originated at the Massachusetts Institute of Technology (MIT) during the early twentieth century. According to Slaughter and Leslie, MIT devised a program in the 1910s where corporations paid an annual "membership fee" (p. 220) to MIT in order to gain access to the institution's latest research updates on science and technology.

Etzkowitz (2004) further characterizes MIT "as the exemplar of an entrepreneurial university" (p. 67) in that the university was established with a specific goal of regional development through technological innovations. MIT did indeed take part in efforts that addressed this goal. For example, in the 1930s, its president, Karl Compton, brought together representatives of its institution, industry, and government to develop strategic plans on how academic research could aid new product development for regional economic gain.

During the World War II and the years following it, many universities engaged in national defense research for the federal government through agencies such as the Department of Defense, Department of Energy, and National Aeronautics and Space Administration (Geiger, 2004; Slaughter & Rhodes, 2004). With funding from the government, the universities created large-scale laboratories or organized research units (ORUs) that were staffed not only by the faculty members but also by "professional scientists, engineers, and technicians" (Geiger, 2004, p. 141). The resulting size of the ORUs "dwarfed academic departments in related areas" (Geiger, 2004, p. 141).

Often applied research was the focus of these ORUs and the outcome was the "development of products and weapons systems" (Geiger, 2004, p. 141). Pennsylvania State University's Applied Research Laboratory (ARL), which was originally established to conduct research for the Navy's Garfield Water Tunnel, was an example of an ORU heavily involved in applied research. However, basic research was the focus at some ORUs such as at the Lawrence Laboratory at Berkeley.

Evolution of Academic Capitalism into Its Form Today

The phenomenon of academic capitalism today retains much of its original characteristics and rationale: universities seeking out externally funded research to enhance the research capabilities of industries and government while gaining prestige and aiding regional economic development. The considerable changes in academic capitalism today, then, are: (a) the increasingly high expectations placed on the universities to make a positive impact in the economic development both regionally and nationally (and perhaps internationally and globally), and (b) the acceptance of these

expectations by many universities, usually due to reduced government funding for higher education (Bok, 2003; Etzkowitz, 2004; Feldman & Desrochers, 2003; Feldman & Desrochers, 2004; Geiger, 2004; Häyrinen-Alestalo & Peltola, 2006; Slaughter & Leslie, 1997). As a result, federal policies have been developed to motivate universities to participate in academic capitalism and many universities today actively take part in the various stages of academic capitalism: discovery of innovations and the subsequent patenting, licensing, or development of the innovation, and stimulating an environment of entrepreneurial creativity through research parks.

The university as an engine for economic development. One reason why increasingly high expectations are placed on universities to make an impact on regional and national economic development seems to be because of the loss by American industry of its dominance in the global economy as Asian countries—China, Japan, Malaysia, Singapore, South Korea, and Vietnam—have become increasingly stiff competitors in world trade (Slaughter & Leslie, 1997). At the same time, the advent of computer and telecommunications technology brought on the most current form of globalization (Friedman, 2005), "the global spread of business and services as well as key economic, social and cultural practices to a world market, often through multi-national companies and the [I]nternet" (Deem, 2001, p. 7). Along with globalization came a shift to the postindustrial knowledge economy, "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence" (Powell & Snellman, 2004, p. 199). To be a successful player in the knowledge economy requires research and education

(Jacob, 2003); research and education are the domains of universities, where valuable human capital exists in the faculty members (Etzkowitz et al., 2000; Feldman & Desrochers, 2003; Geiger, 2004; Jaeger & Thornton, 2006). Thus, the American universities have become an essential piece in the strategies for developing the American regional and national economy.

Accepting the new mission. For the most part, the American universities seem to have accepted these expectations and are ready to participate in the economic development of their regions through research and commercial development, especially in the areas of biotechnology and medical technology (Geiger, 2004; Slaughter & Leslie, 1997). Geiger states:

> … faculty involvement in commercial endeavors is no longer the exception but the rule; and what is true for faculty is also true for their universities. Large amounts of money are at stake, and universities, whether they wish to or not, have become actors in the marketplace. … They are no longer concerned with transferring technology to the commercial sector; they now feel compelled to foster conditions for generating regional wealth. (p. 181)

This acceptance of the new mission can be attributed to some universities' views of augmenting the traditional triumvirate mission with "economic development" (Etzkowitz et al., 2000, p. 313) or "economic and social development" (Etzkowitz (2004, p. 71)[1]. However, there are exceptions. Johns Hopkins University, one of the largest recipients of federal research grants, despite its dominance in externally funded research,

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[1] Etzkowitz et al. (2000) and Etzkowitz (2004) include only teaching and research as the university mission, instead of the triumvirate mission of teaching, research, and service.

has not actively sought to realize commercial gains from their discoveries due to its culture of open and creative science (Feldman & Desrochers, 2004).

Declining government funding. Besides the motivation to affect regional and national economic growth positively, another reason American universities participate in academic capitalism appears to be their declining government funding (Bok, 2003; Geiger, 2004; Slaughter & Leslie, 1997). Slaughter and Leslie (1997) summon the resource dependency theory to explain this occurrence: how the members of an organization behave is understood clearly when considered in the light of the "actions of external agents" (p. 68). That is, "as unrestricted moneys for higher education constrict, institutions within a national system will change their resource-seeking patterns to compete for new, more competitively based funds" (p. 65). Interestingly, Etzkowitz (2004) discounts the decline of funding as a major impetus:

> Although the increase or decrease of funding certainly has an effect on academic and other institutions, such trends can just as easily rigidify existing structures, expanding or contracting them along existing lines, as well as inducing their reform. The reorganization of the university is more fundamentally driven by changes in knowledge production and utilisation as new forms of knowledge are created through the intersection of academic, industrial and government interests. (p. 74)

Nonetheless, the reason behind the decline in government funding seems to be the budget deficits that were brought on by the government attending to its (a) requisite social welfare obligations, (b) large debt incurred when the globalization of the financial

market in the 1970s allowed it to easily borrow from other countries, and (c) military

expansion (Slaughter & Leslie, 1997). Furthermore, during the years 1978-1982, the

"great American inflation" lessened the monetary value of the dollar (Geiger, 2004).

Consequently, scholars state that the American government and governments of nations

across the world have shifted their stance to that of a neo-liberal state (Slaughter &

Rhoades, 2004, 2005; Vaira, 2004) and new managerialism (Deem, 2001; Geiger, 2004;

Häyrinen-Alestalo & Peltola, 2006). As a neo-liberal state, the government focuses less

on providing social welfare entitlements and, instead, invests its resources in initiatives

that generate economic gain and supports "privatization, commercialization,

deregulation, and reregulation" (Slaughter & Rhoades, 2004, p. 21). New managerialism

refers to using the methods of the private sector to manage the public sector with goals

of attaining greater efficiency.

Although Etzkowitz (2004) discounts the declining government funding as a

major impetus for the burgeoning academic capitalism, both reasons—the declining

government funding and its effects on academia as explained through the resource

dependency theory (Slaughter & Leslie, 1997) *as well as* the increased collaboration

between academia, industry, and government to develop new knowledge for economic

growth—appear to be catalysts for academic capitalism. Other catalysts are federal

policies that facilitate academic capitalism. One policy in particular is described below.

Federal policy that facilitates academic capitalism. Of the federal regulations

and laws developed that engender academic capitalism, the "Patent and Trademark

Amendments of 1980 (Public Law 96-517)" (Geiger, 2004, p. 217), more commonly

known as the 1980 Bayh-Dole Act, appears to be the law most attributed to having

motivated academic capitalism (Brint, 2005; Feldman & Desrochers, 2004; Kezar, 2004;

Slaughter & Lesley, 1997; Slaughter & Rhoades, 2004, 2005; Zusman, 2005). The law

permitted the universities who made discoveries as a result of federally funded research

to retain the intellectual property rights associated with the discoveries, and hence,

obtain patents. The law was to stimulate economic development through academic

research and patented discoveries, which in turn could lead to product development and

commercialization. After the law passed, the number of patents awarded increased

tremendously, especially from biomedical research.

Approaches and Infrastructure for Carrying Out Academic Capitalism

Universities today typically engage in one or more of three different approaches

to academic capitalism of research by (a) negotiating industries' access to their research

groups or faculty, (b) establishing publicly subsidized research centers, and (c)

developing spin-off firms (Etzkowitz, 2004; Geiger, 2004). Furthermore, the three

approaches are facilitated by four enabling infrastructures, namely the (a) liaison office,

(b) business incubator, (c) technology transfer office, and (d) research parks. These

approaches and enabling infrastructures are described below.

The simplest approach to academic capitalism comes in the form of industries

purchasing access to a university's research group or faculty, which includes faculty

members or graduate students offering consultations to industries at a fee (Etzkowtiz,

2004; Geiger, 2004). The university's role in this traditional approach to academic

capitalism is to extend the research capacities of the industries. Another approach,

intermediate in complexity, is for a university to receive public funds to operate a research center, generating knowledge suitable for the industries. The *publicly subsidized center*, in turn, hopes to attract further research investments from the industries. The most complicated approach is the *spin-off firm* where research conducted at a university leads to an innovation that can be commercialized and marketed via a firm spun off separately from the university.

The hierarchy of four forms of enabling infrastructures that facilitate academic capitalism are the *liaison office*, *business incubator*, *technology transfer office*, and *research parks*. Of these, the simplest form appears to be the liaison office. The role of a liaison office is to be the bridge, or broker, between the faculty and academic departments seeking research funds from the industry and industries seeking research (Etzkowitz, 2004). The liaison office helps the two parties to learn about each other; the outcome may be a faculty member providing consultation to an industry or a piece of industrially funded research for a faculty member or an entire department.

Business incubators require little capital investment and their role is to provide assistance to start-up or spin-off companies (Geiger, 2004). Furthermore, the start-ups and spin-offs assisted by the business incubators may or may not have been created as a result of research conducted at the university. The next form of enabling infrastructure is the technology transfer office where "knowledge is encapsulated in a technology and moved out" (p. 73). The role of the technology transfer office is to "identify, patent, market and license intellectual property" (p. 73), and the office is responsible for both

transferring the technology out to the industry as well as finding a suitable buyer of the technology.

The most complicated form of enabling infrastructure is the university research parks, "multimillion-dollar real estate developments" (Geiger, 2004, p. 205). The idea behind research parks is to promote research and commercialization of innovations by placing in proximity academic researchers and industries. The goals of universities developing research parks include achieving the kind of enormous success seen earlier with the Stanford Industrial Park (established in 1951) or the Research Triangle Park of North Carolina (established in 1959). Geiger laments "university research parks epitomized the technology transfer bandwagon of the 1980s" (p. 205).

Two Variant Perspectives of Academic Capitalism

The preceding sections provided an overview of the typical views of academic capitalism. In this section, two variant perspectives are presented: Slaughter and Rhoades' (2004; 2005) view of academic capitalist knowledge/learning regime and Etzkowitz et al.'s (2000) triple-helix model.

Academic capitalist knowledge/learning regime. Slaughter and Leslie's (1997) earlier work described the phenomenon of academic capitalism. Slaughter and Rhoades' (2004, 2005) later work, however, distinguished between academic capitalism and academic capitalist knowledge/learning regime (ACKLR). The latter label, ACKLR, made a clear distinction between "commercialization of research" (2004, p. 137) and "commodification of education" (2004, p. 137) where *commercialization of research* appears to be associated with academic capitalism efforts as a result of the 1980 Bayh-

Dole Act that allowed universities to retain the intellectual property rights of federally-funded research outcomes. In contrast, *commodification of education* is a more recent approach to academic capitalism, introduced around the "late 1980s and 1990s, occurring subsequent to the commercialization of research through patents" (2004, p. 138). They describe that commodification of education typically occurs when universities retain the intellectual property rights and copyrights of instructional materials developed by teams of faculty members and academic professionals.

Slaughter and Rhoades (2004, 2005) also point out how the changes in student financial aid legislation over the years have contributed to ACKLR. Specifically, they state that the changes in legislations that transfer the financial aid, grant or loan, directly to the student as opposed to the institution has changed the role of the student to a consumer, who can now shop around in the market of higher education.

Triple-helix model. The premise of the triple-helix model is that in today's knowledge economy, the university plays a vital role in the innovation system. In this model, Etzkowitz et al. (2000) extend the oft mentioned university-industry relationship in academic capitalism to "university-industry-government" (p. 314), three spheres—academic, private, and public—that used to function in separate silos but now "are increasingly interwoven with a spiral pattern of linkages emerging at various stages of innovation and industrial policy-making processes" (p. 315). This perspective acknowledges the importance and requisite participation of all three spheres and describes four processes that occur within each sphere or between the three spheres.

Four processes occur in the triple-helix model. First, each sphere makes the necessary transformation for academic capitalism. For example, the necessary transformation for the academic sphere is adding economic development to the previous university mission (triumvirate for most scholars but just teaching and research for Etzkowitz et al.). Second, a sphere initiates an action that influences the transformation in another. The 1980 Bayh-Dole Act would be an instance of an action in the public sphere that facilitated the transformation in the academic sphere. Next, an interfacing unit is created that serves to connect all three spheres. For example, a university research park that houses the public and private components, as well as the faculty, could serve as an interfacing unit. Finally, the "recursive effect" occurs on the individual spheres as well as the "larger society" (p. 315), caused by the interrelationship between the academic, private, and public spheres.

How Does Academic Capitalism Positively and Negatively Affect the Faculty, Students, and Enterprise of Public Research Universities?

Judging from the advantages and disadvantages of academic capitalism described by scholars, the phenomenon of academic capitalism has been both criticized and praised. This section presents three criticisms and three praises of academic capitalism.

The Criticisms

The criticisms of academic capitalism appear to pertain to students, faculty, and the enterprise of public research universities. As such, they address the triumvirate mission of the university as well as the professionalization of faculty.

Criticisms affecting students (teaching mission). The chief criticism of academic capitalism pertaining to students appears to be: because of the prominence placed on research and on the subsequent commercialization of the research efforts, undergraduate teaching suffers (Slaughter & Leslie, 1997). Fairweather's (2005) analysis of faculty pay from the 1998-1999 National Survey of Postsecondary Faculty seems to corroborate this concern: the analysis clearly indicates a reward structure based on research and not on undergraduate teaching. Faculty members, especially at research universities, were rewarded for scholarly publishing, being a principal investigator on an externally funded grant, and teaching graduate students. Faculty members who focused on teaching using effective methods (e.g., collaborative techniques) were not rewarded. This aspect may be a concern for faculty members who teach using educational technology since such efforts not only seem to fall under the teaching mission but also require a large amount of time commitment (Beggs, 2000; Groves & Zemel, 2000; Jacobsen, 1998), time which could be spent on the more rewarded activities such as conducting externally funded research.

Criticisms affecting faculty (professionalization). The criticisms affecting faculty include loss of academic freedom (Harris, 2005) and faculty exploitation (Slaughter & Rhoades, 2005). Loss of academic freedom is suggested as having been brought on by the neo-liberal state, where nations are placing a greater emphasis on economic competitiveness and in turn support "privatization, commercialization, deregulation, and reregulation" (Slaughter & Rhoades, 2004, p. 21). In addition, since new managerialism—the public sector's attempt to institute the methods of the private sector

to achieve increased efficiency (Deem, 2001; Geiger, 2004; Häyrinen-Alestalo & Peltola, 2006)—seems to accompany neo-liberalism, the new managerialism appears to be another factor in the loss of academic freedom.

Faculty exploitation as suggested by Slaughter and Rhoades (2005) refers to the university practice of retaining the intellectual property rights and copyrights of course materials faculty members develop as a team with academic professionals in the academic capitalist knowledge/learning regime. Faculty members, in essence, become content experts with no rights to the products they develop in the capacity of work-for-hire. Since educational technology could include such course materials, this issue of faculty exploitation may be another concern for faculty members who teach using educational technology.

Criticisms affecting the enterprise of public research universities (research and service missions). Two criticisms affecting this area are the decline of basic research (Feldman & Desrochers, 2003; Feldman & Desrochers, 2004; Etzkowitz, 2004; Geiger, 2004; Slaughter & Leslie, 1997) and the decline of public service (Jaeger & Thornton, 2006). Since the externally funded research the universities conduct are typically applied research with potentials for commercialization, critics point out less basic research, "open science," or "curious science" (Feldman & Desrochers, 2004, p. 124) is being conducted, and therefore, less knowledge earmarked for the public good is being generated. However, scholars (e.g., Etzkowitz and Geiger) seem to disagree on this issue, noting that basic research questions were generated from the applied research projects conducted during World War II. Another criticism affecting the enterprise of

public research universities is the decline of public service by faculty, especially by the faculty in public land-grant universities, for academic capitalism's reward structure does not recognize public service.

The Praises

However, not all observations regarding academic capitalism are criticisms. This section describes the praises made by scholars of academic capitalism. Like the previous *Criticisms* section, the praises are described by how they affect the students, faculty, and enterprise of public research universities.

Praises affecting students (teaching mission). One benefit from academic capitalism on teaching is that there can be a "spillover" effect from research into teaching (Slaughter & Leslie, 1997, p. 123). Slaughter and Leslie found faculty members who conduct applied research were able to incorporate what they learn from research into their teaching. However, faculty members who conduct basic research stated their research projects were too complicated to allow a spillover into undergraduate teaching.

Praises affecting faculty (professionalization). While Harris (2005) suggests academic capitalism causes a loss of academic freedom, Brint (2005) provides another view. He suggests the revenue earned through academic capitalism could be used to conduct self-supported research, which then promotes autonomy. Furthermore, Geiger (2004) points out the interaction between faculty and industrial scientists that occur through academic capitalism is an intellectually valuable experience.

Praises affecting the enterprise of public research universities (research and service missions). The most significant praise for academic capitalism that affects the

public research university as a whole seems to be the additional funding or economic gain for the university that happens as a result of academic capitalism, where the gain typically gets recycled back into the university as research funds (Geiger, 2004; Jaeger & Thornton, 2006). To many, this advantage is perhaps the raison d'être of academic capitalism.

Summary of Academic Capitalism

The phenomenon of academic capitalism affects students, faculty, and the enterprise of public research university as a whole. It appears to impart both advantages and disadvantages for the stakeholders who make up the system. Among its disadvantages, the chief problem may be that academic capitalism creates inequities among the academic fields, that is, among the fields that can easily engage in academic capitalism and those that cannot. The literature shows the disciplines and fields most often cited as participating in academic capitalism are biotechnology, medicine, science, engineering, and information technology. The disciplines and fields of education, humanities, and liberal arts, on the contrary, seem to be underrepresented, and therefore, not able to realize the advantages of academic capitalism mentioned in the previous section. Perhaps this distinction, of disciplines and fields who can and cannot easily participate in academic capitalism, may also be salient in the experiences of the faculty members who teach using educational technology.

Educational Technology

Like the review of literature on academic capitalism, the purpose of this review is to explore the phenomenon of teaching using educational technology by examining its

origins and characteristics, the rationale for and against teaching using educational

technology, and the barriers encountered when teaching using educational technology.

Three questions guided the review: What is educational technology?, What is the

rationale for and against teaching using educational technology?, and What are the

barriers to teaching using educational technology?

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What Is Educational Technology?

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The goal of asking this question was to determine how educational technology is

defined and how it originated and evolved. The remaining paragraphs in this section

address these sub-questions.

Definition of Educational Technology

The term *educational technology* is an evolving one and often used

interchangeably with *instructional technology*. While the two may technically have a

different meaning, often times, they are used synonymously (Earle, 2002; Gentry, 1995;

Seels & Richey, 1994). For example, some argue that educational technology is broader

than instructional technology since *educational* refers to "all aspects of education" while

instructional narrows the scope to "teaching and learning problems" (Seels & Richey,

1994, p. 4). Even so, people use the two terms interchangeably.

The Association for Educational Communications and Technology (AECT), a

professional organization for the field of educational technology, is one entity that has

defined and updated *educational technology* (or similar terms) over the years. The first

formal definition endorsed by AECT was in 1963, when educational technology was

referred to as *audiovisual communications* (AECT, 2001). Since then, AECT has

updated the definition in 1972 (defined *educational technology*), in 1977 (defined

educational technology), in 1994 (defined *instructional technology*), and in 2005

(defined *educational technology*) (AECT, 2001; Januszewski, 2006; Seels & Richey,

1994). The 2005 definition states "educational technology is the study and ethical

practice of facilitating learning and improving performance by creating, using, and

managing appropriate technological processes and resources" (Januszewski, 2006, p.

10). Since this definition reflects the most current thoughts on educational technology, I

have used this definition as a foundation for identifying faculty members who teach

using educational technology.

Origins of Educational Technology

The origins of educational technology can be portrayed through the series of

instructional media that schools, military, and industry have adopted and implemented

(Reiser, 2001). Instructional media, "the physical means via which instruction is

presented to learners" (Reiser, 2001, p. 54), were initially referred to as visual instruction

and can be traced as far back as to the 1600s when Johan Comenius encouraged learning

using the senses by teaching using "real objects and illustrations" (Reiser, 1987, pp. 12-

13). In more recent centuries, the visual instruction movement includes the use of (a)

"lantern slide projectors" (Reiser, 2001, p. 55) during the latter half of the 1800s, (b)

"films, slides, and photographs" (Reiser, 2001, p. 55) at school museums during the

early 1900s, and (c) instructional films in the 1910s.

The visual instruction movement then evolved into audiovisual instruction in the

1920s as the advancement of audio technology allowed sound recordings to be

integrated with images and illustrations (Reiser, 2001; Reiser & Ely, 1997). The use of instructional radio followed in the 1930s. Audiovisual media were used heavily in the military and industry during World War II and included devices such as "training films and film projectors, … overhead projectors ... slide projectors … audio equipment … simulators and training devices" (Reiser, 2001, p. 57). These instructional media were used for various training needs such as foreign language training and flight training.

Instructional television became the next popular instructional medium in the 1950s, followed by computers (Reiser, 2001). The use of computers as an instructional medium started as early as in the 1950s but became more prevalent in the 1980s. Today, with the advent of the Internet and improvement in the computer technology, distance education over the Internet is a wide-spread instance of instructional media.

What is truly remarkable about the introduction, adoption, and implementation of the different instructional media—and thus educational technology—over the years is how each new medium was predicted to be the ultimate technology that would revolutionize teaching and learning and how the predictions were not fulfilled. Anderson (as cited in Reiser, 2001) notes that in 1913, Thomas Edison predicted "books will soon be obsolete in the schools …. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed in the next ten years" (p. 55). Similar predictions were made about the instructional radio in the 1930s, instructional television in the 1960s, and computer-assisted instruction in the 1970s.

Today, while more schools have access to educational technology than ever before, its potentials have not been realized (Amiel, 2006; Cuban, Kirkpatrick, & Peck,

2001; Reiser, 2001; Weston, 2005). This topic will be discussed in the next sections, where rationale for and against educational technology, as well as its barriers, are addressed.

What Is the Rationale For and Against Teaching Using Educational Technology?

Survey, descriptive, and formal evaluation studies have been conducted that provide the rationale for teaching using educational technology (CARET, 2005; Roblyer, 2006). The rationale includes: educational technology can (a) motivate students to learn, (b) offer enhanced methods of presenting content to students, (c) increase student and teacher productivity, and (d) help to develop information age skills in students. In this section, the rationale for teaching using educational technology specifically in higher education will be provided and illustrated through two examples. Furthermore, the findings of a landmark meta-analysis on the effectiveness of educational technology will be shared. Finally, the opportunity to facilitate social inclusion as another rationale for teaching using educational technology will be offered.

Rationale for Teaching Using Educational Technology in Higher Education

Educational technology in higher education is hoped to be the means through which teaching and learning can be made more efficient and accessible and of higher quality (Gumport & Chun, 2005). Features such as "interactive and learner-centered" instruction (Weston, 2005, p. 101), "innovative cognitive tool" (Weston, 2005, p. 108), and the ability to reach out to those who require flexibility in when and where they can obtain learning are possibly some reasons for the hopes placed on educational

technology as an effective teaching and learning tool. The following two applications of educational technology in higher education will illustrate these reasons.

The Visible Human Dissector. Learning about the human anatomy in undergraduate courses is typically accomplished through dissecting a human cadaver, an expensive instructional resource (Weston, 2005). Because of the high cost of human cadavers, smaller universities and community colleges typically are not able to provide the cadavers as an instructional resource, and instead, fall back on suboptimal resources such as animal cadavers, models, or images. Even those institutions who have access to human cadavers note the access is limited. This obstacle—limited access to instructional resource, can be overcome with educational technology, and the Visible Human Dissector, an instructional anatomy software that allows the students to dissect a 3-dimensional "visual representation of the visible human male using the computer mouse" (Weston, 2005, p. 105), is an example of how a group of universities and community colleges in Colorado addressed the obstacle of limited access.

Serving as an "innovative cognitive tool" (Weston, 2005, p. 108) is another rationale behind educational technology. While the instructional anatomy software too is an alternate resource and not meant to entirely replace the use of human cadavers, it offers novel benefits which are not possible with an actual human cadaver: the Visible Human Dissector allows students to view and study the body from multiple perspectives as they rotate it, view cross-sections, and "add or take away skin opacity (the ability to see internal structures in relation to external features)" (p. 105). These benefits are instances of an innovative cognitive tool.

GEOS114: Global Environmental Crises. GEOS114, Global Environmental

Crises, is an undergraduate geography course offered by an Australian university that

covers topics pertaining to the environment (Rich, Pitman, & Gosper, 2000). Five

reasons prompted this course to be converted from a traditional face-to-face mode into

an online version: (a) lack of funds to staff tutors although funds were available for

innovative teaching; (b) a strong desire to offer a flexible mode of delivery using

"multiple media" (p. 111) to address the needs of students who were entirely campus-

based as well as those who were distance-based; (c) positive responses from the students

on the initial delivery of technology-based multiple-choice quizzes; (d) with the advent

of the Web, "the opportunity to present a fully integrated approach" (p. 112) of

delivering the content modules, communicating, and conducting assessments; and (e) the

strategic importance of a web-based delivery for an institution whose goals included

"innovation, teaching excellence and flexible learning, and to a discipline anxious to

enhance learning outcomes, meet student needs and increase its geographical reach" (p.

112).

Serving the Underserved

An added benefit of flexible delivery options is the possibility to "serve the

underserved" (Benson, 2004, p. 51) low-income workers, such as welfare recipients who

are now mandated by the 1996 Personal Responsibility and Work Opportunity

Reconciliation Act to work "at least 30 hours a week" (p. 53). Findings from a study

show past welfare recipients who were able to earn enough to exit the poverty category

were those with "at least a two-year postsecondary or vocational degree" (p. 53). Thus,

attaining a higher education degree may be helpful; however, low-income workers tend to hold jobs with non-flexible hours. For these workers, the flexibility of time-independent online distance education would be most useful if they can gain access to the necessary technology and develop technology literacy. This point of access and literacy will be further discussed later when technology as a facilitator of social inclusion is introduced.

Landmark Meta-analysis on the Effectiveness of Educational Technology

Comparing the effectiveness between traditional instructional delivery—face-to-face—and technology-based—instructional television, instructional software, or web-based distance education—is termed "media comparison studies" (Lockee, Burton, & Cross, 1999) and have spurred much debate in the field of educational technology because of the prevalent findings of *no significant difference*. Such findings can become a rationale for teaching using educational technology because they can be evidence that teaching and learning using educational technology is just as effective as the traditional approach.

A landmark meta-analysis on the effectiveness of educational technology is Kulik and Kulik's (1991) work that examined 254 studies that measured computer-based student learning outcomes in experimental and control groups. The findings of this meta-analysis were: (a) modest gains were found in scores from computer-based instructions (CBI), by a 0.30 standard deviation; (b) shorter studies (in duration) produced better student learning gains; (c) studies where different teachers taught the experimental and control groups had greater learning gains; (d) studies published in journals had greater

learning gains than studies published in dissertations or technical document; (e) students take less time to learn with CBI without affecting their learning outcomes; (f) CBI had positive effects on the students' attitudes toward learning and computers; and (g) the issue of cost effectiveness was inconclusive. While these findings do not overwhelmingly support teaching using educational technology, it is interesting to note that students took less time to learn without affecting the outcomes and CBI had positive effects on student attitudes. Findings such as these appear to serve as rationale for teaching using educational technology for those so motivated (Lockee et al., 1999).

Educational Technology Can Facilitate Social Inclusion

For educational technology to be effective and live up to its potentials of bringing about pedagogical change, Amiel (2006) argues for technology literacy along the line of Warschauer's idea of "technology for social inclusion" (2002, p. 8).

Warschauer's (2002) idea of technology for social inclusion is an attempt to redefine *digital divide*, a term that refers to the gap that exists between those who have access to technology and those who do not and the resulting exclusion from participating in whatever benefits that technology offers (Amiel, 2006; Benson, 2004; Warschauer, 2002). Warschauer argues that the term digital divide connotes lack of access to the physical technology only and ignores other costs such as maintenance and training, and therefore, simplifies the issue when the problem is "woven in a complex manner in social systems and processes" (2002, p. 8). Instead, he broadens the concept of digital divide to technology for social inclusion, uses literacy as a foundation and considers literacy "as a set of social practices rather than a narrow cognitive skill" (p. 13). The

resulting model of technology for social inclusion is recognizing that not only physical

technology is a required resource, but that other pertinent resources are also needed. In

total, his model identifies four necessary resources for enabling technology for social

inclusion: (a) physical resources (e.g., computer, Internet access); (b) digital resources

(e.g., actual content such as web pages or instructional materials); (c) human resources

(e.g., for technology literacy training or education); and (d) social resources (e.g.,

community, institutional, and societal support).

Amiel (2006) notes schools' and governments' tendencies to view the digital

divide as a matter of inadequate supply of physical resources and the solution to digital

divide as investment in more computers without considering the remaining three

requisite resources (digital, human, and social). The outcome, Amiel suggests, is

abundant investment in educational technology at schools without realizing the potential

benefits educational technology can offer.

Rationale against Educational Technology

Critics of educational technology highlight (a) the high cost of investment

required to teach using educational technology, (b) the low rate of teacher adoption of

educational technology, and (c) the lack of substantial experimental research studies that

indicate the effectiveness of educational technology (Roblyer, 2006).

Furthermore, Noble (2002) raises many concerns regarding higher education's

foray into distance education. His concerns appear to be linked to the drawback of

commodification of education (i.e., academic capitalism). Noble's concerns are listed

below.

1) The underlying motivation or drive for distance education in higher education is for commodification of higher education, or the motivation to profit economically from distance education.

2) Distance education is more suitable for training than education.

3) Distance education is inferior to traditional education because it separates the learners from the faculty and this separation causes relationships to not form; "the relationship between people is central to the educational experience … and the chief determinant of quality education is the establishment and enrichment of this relationship" (p. 28).

4) The commodification of higher education brings about the "'deprofessionalization' of the professoriate" (p. 29) and higher education will become EMOs (as healthcare institutions became HMOs).

5) The process of producing distance educational materials causes deskilling, where teams of people come together, and each member only completes a small segment of the production process.

6) Faculty lose their intellectual-property rights as they turn over their materials to the production teams (and ultimately to the institution).

7) And, in the process, higher education comes to resemble Frederick Taylor's scientifically managed organization.

Summary on Rationale For and Against Teaching Using Educational Technology

The potentials of educational technology include (a) serving as instructional resources in situations where necessary resources are limited or unavailable, (b)

enhancing the learning experience by providing novel approaches to help students understand a topic, and (c) assisting working adults to participate in higher education who, without the access provided through distance education, would have otherwise been excluded.

However, "the computer is, nevertheless, just a tool, not a pedagogy" (Amiel, 2006, p. 250). Investing in the physical hardware alone in attempts to reap the benefits of educational technology makes available only one of the four necessary resources Warschauer (2002) suggests. Taking the perspective of technology for social inclusion may help to illuminate the problem from lack of access to hardware to that of lack of access to the three other requisite resources: (a) digital content, (b) human, and (c) social.

What Are the Barriers in Teaching Using Educational Technology?

Teaching using educational technology appears to present many barriers. This review of literature on the barriers is the third component in exploring the phenomenon of teaching using educational technology. What follows, then, is the result of the review.

Defining Barriers

A general definition of barriers is "something immaterial that impedes or separates" (Merriam-Webster Online, 2006, p. 1), such as an obstacle. Based on educational technology use in the K-12 environment, Ertmer (1999, 2005) describes first-order and second-order barriers. First-order barriers are obstacles extrinsic to teachers, such as obstacles presented by the teachers' environments that include inadequate infrastructure, poor administrative and technical support, and lack of time to

learn about teaching with educational technology. Second-order barriers are obstacles intrinsic to teachers, that is, obstacles that are inherent to a teacher's belief system and philosophy about teaching and learning. Some examples of second-order barriers are a teacher's thoughts on change, on learner-centered versus teacher-centered instruction, and on the role of computers in teaching and learning. First-order barriers are considered to produce incremental change as institutional hurdles are removed; second-order barriers produce fundamental change as personal oppositions give way.

The significance of and relationship between the two types of barriers seem to be unclear. In 1999, Ertmer stated that the general understanding was "first-order barriers can be significant obstacles to achieving technology integration, yet the relative strength of second-order barriers may reduce or magnify their effects …. Whereas beliefs (second-order barriers) may impede meaningful use, first-order barriers may hinder actualization of more facilitative beliefs" (p. 6). In 2005, Ertmer notes much of the first-order barriers have been eliminated in schools but teachers are still not effectively integrating educational technology. She calls for the need to conduct further studies that closely examine the relationship between teacher beliefs and the integration of educational technology (Ertmer, 2005).

Summary of the Barriers

The summary that follows is based on the findings of ten research studies where each study's purpose included identifying barriers to integrating educational technology. The ten studies I selected represent different disciplines, were conducted not more than 10 years ago, and include varying modalities of educational technology such as distance education, web-based education, and mobile computing. Nine studies explored the barriers exclusively in higher education while one explored the barriers in higher education and other environments. Eight studies used the survey method, one used an interview method, and another used a comparative case study method. I summarize the studies in ascending chronological order. The barriers are categorized into Ertmer's (1999, 2005) first- or second-order label and organized around the themes identified by Muilenburg and Burge (2001). The legend for identifying the authors is listed in Table 1 below.

Table 1. Legend for Identifying the Articles

Article #	Authors	Article #	Authors
1	Jacobsen, 1998	6	Muilenburg & Burge, 2001
2	Groves & Zemel, 2000	7	Shim & Shim, 2001
3	Beggs, 2000	8	Butler & Sellbom, 2002
4	Leong et al., 2000	9	Ebersole & Vorndam, 2002
5	Dooley & Murphy, 2001	10	Weston, 2005

Jacobsen (1998). Jacobsen conducted a survey-based research, both web- and paper-based surveys, to learn about faculty innovativeness in teaching with technology. Seventy-six faculty members across the disciplines from two major North American

universities completed either the web- or paper-based survey. The barriers faculty

members reported are listed in Table 2, separated into first-order or second-order barriers.

Table 2. Jacobsen (1998)

First-Order Barriers	Second-Order Barriers
• Lack of o Time o Access to computers (both faculty and students) o Financial support • Mismatched reward structure o Educational technology integration not recognized o Research efforts more important than teaching efforts	• Faculty complacency • Lack of evidence on effectiveness

Groves and Zemel (2000). Groves and Zemel adapted Spotts and Bowman's

(1995) survey instrument to conduct a paper-based survey of the full-time faculty and

graduate teaching assistants in the College of Human Ecology at the University of

Tennessee. The response rate was 49% (61/135). The purpose of the study was to assess

what factors influenced or served as barriers to educational technology integration.

Groves and Zemel report their findings as factors that *influence the use* of educational

technology. Therefore, for my purposes, I provide the absences of the factors Groves and

Zemel found as barriers. For example, equipment availability was found to be one of the

top important factors that influence the use of educational technology. For my summary

below in Table 3, I indicate that the lack of equipment availability is a barrier.

Table 3. Groves and Zemel (2000)

First-Order Barriers	*Second-Order Barriers*

• Lack of
     o Equipment availability
     o Time needed to learn
     o Training
     o Administrative support
     o Compatibility with discipline
 • Difficulty in using educational technology
	• Lack of evidence on
	     o Improved student learning
	     o Increased student interest
	     o Advantages over traditional methods of teaching
	 • Personal comfort with technology

Beggs (2000). The purpose of Beggs' study was to identify the reasons faculty members adopt educational technology. Beggs adapted Groves and Zemel's (2000) instrument and surveyed full-time faculty at the State University of West Georgia. The response rate was 44% (156/348). The findings are listed below in Table 4.

Table 4. Beggs (2000)

First-Order Barriers	*Second-Order Barriers*

• Lack of
     o Time
     o Easily accessible equipment
     o Training
	• Concerns on whether educational technology can enhance learning
	 • Frustrations with educational technology

Leong, Baldwin, Usatine, Adelman, and Gjerde (2000). Leong et al. conducted a nationwide survey of the medical schools in the US to assess the level of integration of web-based education in family medicine predoctoral programs. Their aim was to gauge whether or not medical schools could benefit by collaborating to develop web-based instructional resources for family medicine topics. The survey was mailed to 128 family medicine predoctoral directors; 78 responded at a rate of 61%. As listed below in Table

5, only first-order barriers were identified. Interestingly, 60% or more of the respondents indicated that these resources were not lacking (first-order barrier): equipment, technical support personnel, departmental support, and institutional support. Sixty-five percent responded that faculty interest was available.

Table 5. Leong, Baldwin, Usatine, Adelman, and Gjerde (2000)

First-Order Barriers

• Lack of
   o Protected faculty time
   o Internal funding
   o External funding

Dooley and Murphy (2001). Dooley and Murphy conducted a paper-based survey of all 315 teaching faculty members at a land grant college of agriculture. The purpose of the study was to produce a baseline data of faculty perceptions regarding teaching using educational technology in the college. The response rate was 83.5%. The barriers identified are listed below in Table 6.

Table 6. Dooley and Murphy (2001)

First-Order Barriers	*Second-Order Barriers*

• Lack of
   o Time
   o Technical support personnel
   o Training
• Need for faculty rewards
   o Release time
   o Work load reconfigurations
   o Credit toward tenure/promotion efforts
	• Lack of
	   o Pedagogical skills related to integrating educational technology into teaching

Muilenburg and Berge (2001). Muilenburg and Berge conducted an online survey to identify the underlying constructs of barriers to distance education. During a period of seven months, 2,530 respondents completed the survey, of which 2,504 responses were valid. While the majority of the respondents were from higher education (65.9%), smaller percentages of the respondents were from K-12 education, government and non-profit organizations, and the corporate sector. An exploratory factor analysis yielded 10 underlying constructs of barriers. They are listed below in Table 7. The constructs *legal issues* and *student-support services* are listed under both first- and second-order barriers because certain aspects of each are first-order barriers while other aspects are second-order.

Table 7. Muilenburg and Berge (2001)

First-Order Barriers	*Second-Order Barriers*
- Administrative structure - Lack of arrangements between organizations on costs, tuition and fees, and sharing of revenue - Organizational change - Lack of shared vision for distance learning and strategic plan - Technical expertise, support, infrastructure - Faculty compensation and time - Lack of release time, grant funds, incentives - Legal issues - Concerns about copyright and fair-use policies - Access - Faculty - Students	- Social interaction and program quality - Discomfort in student-centered and collaborative learning - Uncertain about quality of distance learning programs, student learning, and assessment - Threat of technology - Evaluation/effectiveness - Concerns about lack of research supporting effectiveness - Legal issues - Concerns about intellectual-property rights - Student-support services - Concerns about monitoring student identity

Table 7. (continued)

First-Order Barriers	*Second-Order Barriers*
• Student-support services o Lack of student advisement and library services	

Shim and Shim (2001). Shim and Shim conducted a survey of faculty members at a large private university in the Northeast US to gauge the faculty perceptions of the benefits and barriers of implementing mobile computing for teaching and learning. The survey was sent to all 98 faculty members at a campus considering implementing mobile computing; 39 responses were collected (40% rate). The findings are listed below in Table 8 (there were no second-order barriers).

Table 8. Shim and Shim (2001)

First-Order Barriers
• Inadequate facilities
• Lack of student exposure, training, and background
• Difficulty in developing curricula
• Lack of faculty exposure, training, and background

Butler and Sellbom (2002). Butler and Sellbom conducted a survey to identify the barriers to adopting technology for teaching and learning as well as the factors that facilitate adoption. Of the 410 faculty in the college of sciences and humanities at Ball State University, in Muncie, Indiana, 125 responded (30% rate). The findings are listed in Table 9.

Table 9. Butler and Sellbom (2002)

First-Order Barriers
- Lack of   - Equipment reliability (failure or malfunction)   - Time to learn new technologies   - Institutional support   - Problems with hardware/software   - Carts too hard to use   - Too different across classrooms   - Software out of date

Ebersole and Vorndam (2002). Ebersole and Vorndam conducted interviews of 24 faculty members across 24 campus departments at a regional comprehensive university. Asking closed and open-ended questions, Ebersole and Vorndam aimed to discover barriers and incentives for adopting educational technology. The three main categories they found are listed below in Table 10.

Table 10. Ebersole and Vorndam (2002)

First-Order Barriers	*Second-Order Barriers*
- Time constraints - Resource constraints	Questions about the effectiveness of educational technology

Weston (2005). Weston conducted a comparative case study of 13 instructors from 10 large and small, as well as public and private, institutions in Colorado to explore their motivations for and obstacles in integrating the Visible Human Dissector anatomy software into their undergraduate courses. The findings are listed in Table 11.

Table 11. Weston (2005)

First-Order Barriers	Second-Order Barriers

• Slow response by IT staff
• Lack of computer resources in anatomy labs
• Rigid curricular requirements that impeded integrating the software
• Time constraints
  o Lack of time for learning the software
  o Lack of time for preparing lessons using the software
  o Large amount of time needed to prepare the scripts for teaching with the software
	• Lack of confidence
	• Lack of motivation to change the instruction

Aggregate of the Summary

Table 12 below aggregates the summary of barriers from the 10 studies. Table 1, displayed earlier, serves as a legend for Table 12 by listing the article numbers and the associated authors. The most mentioned first-order barrier was time constraints (mentioned by all ten studies), followed by equipment access/availability/reliability issues and mismatched faculty reward structure. The most mentioned second-order barrier was the effectiveness issue (lack of evidence that educational technology is effective), and this issue appears to be the most troublesome barrier that touches the core of faculty's personal beliefs.

Table 12. The Barriers Identified in All 10 Studies

Barriers	Article Number										Total Articles
	1	2	3	4	5	6	7	8	9	10	
First-Order Barriers											
• Administrative structure						✓					1
• Administrative support		✓									1
• Equipment access/availability/reliability	✓	✓	✓			✓		✓		✓	6
• Expertise constraints		✓					✓			✓	3
• Facilities (inadequate)							✓			✓	2
• Faculty reward structure (mismatched)	✓				✓	✓	✓			✓	5
• Financial support (lack of)	✓										1
• Funding issues (lack of)				✓							1
• Incompatibility with discipline		✓									1
• Institutional support (lack of)								✓			1
• Legal issues						✓					1
• Organizational change issues						✓				✓	2
• Student-support services (lack of)						✓					1
• Technical support personnel (lack of)					✓	✓				✓	3
• Time constraints	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
• Training support (lack of)		✓	✓		✓		✓				4
Second-Order Barriers											
• Advantages over traditional methods		✓									1
• Effectiveness issues (lack of evidence)	✓	✓	✓			✓			✓	✓	6
• Faculty complacency	✓									✓	2
• Frustrations with educational technology			✓								1
• Legal issues						✓					1
• Pedagogical skills					✓						1
• Personal comfort (lack of)		✓									1
• Social interaction and program quality						✓					1
• Student interest (uncertain)		✓									1
• Student-support services						✓					1
• Threat of technology						✓					1

Faculty members in higher education who teach using educational technology indeed appear to experience many barriers to doing so. Understanding their experience of teaching using educational technology in today's academic capitalism era may inform and help to establish future policies and plans that address these barriers.

Job Satisfaction

Academic capitalism and teaching using educational technology are at least two issues in higher education that appear to confront faculty members. Because attending to each may affect faculty job satisfaction—how someone feels about his or her job (Spector, 1997)—understanding the factors faculty find important in job satisfaction seems relevant to this study. These factors of job satisfaction are first explored from a broader perspective of human resource development (HRD) before narrowing the scope to job satisfaction of faculty in higher education. Thus, this segment of the review of literature will provide a review of job satisfaction from both the HRD and higher education perspectives.

Job Satisfaction from an HRD Perspective

As described in *Chapter I: Introduction*, HRD is a young, interdisciplinary field of practice and study that aims to carry out changes in organizations for the purpose of meeting the mission and goals of the organization by developing human capitals using education and training (Swanson & Holton, 2001; Torraco, 2001; Watkins, 2001). The questions that guided the review were What is job satisfaction? and What are the factors reported as being important to employee job satisfaction?

Figure 1 on the following page is a diagram that synthesizes the results of the review and serves as an overview. The details of the review are provided in the subsequent pages but as a brief introduction, these key points regarding job satisfaction are listed here:

- Job satisfaction is an affective value held by employees or faculty, influenced by various input factors (e.g., employee empowerment or teaching load), and comprising different dimensions (e.g., satisfaction with supervisor or satisfaction with salary).

- Some factors and dimensions of job satisfaction noted from the two perspectives of HRD and higher education appear to be similar in meaning (e.g., empowerment and autonomy) and thus are indicated in the two shaded boxes.

- Because studies have found an inverse relationship between job satisfaction and turnover intentions, *turnover intentions* is displayed at the bottom of the figure as the output of job satisfaction.

Figure 1. Overview of Job Satisfaction from HRD and Higher Education Perspectives

Organizational Culture
Factors (Egan et al., 2004)
- participative management
- participative decision- making
- employee empowerment

Faculty Work life Factors
(Rosser, 2004)
- technical support
- administrative support
- community and service work
- professional development

Internal Environmental
Factors (Matier, 1990)
Intangible Benefits
- personal reputation
- institutional reputation
- autonomy
- influence
- sense of belonging
Tangible Benefits
- wages
- facilities
- work rules
- fringe benefits

External Environmental
Factors (Matier, 1990)
- quality of life
- family
- friendships
- financial considerations not related to the job

Organizational Satisfaction
Factors (Smart, 1990)
- institutional and departmental intellectual environments
- faculty-student ratio
- salary
- teaching load
- administration
- personal relations among faculty
- academic quality of student

Input
Factors of job satisfaction from the HRD perspective

Shared Input
- **Participative management and decision-making/Influence**
- **Employee empowerment/autonomy**

Input
Factors of job satisfaction from the higher education perspective

Dimensions,
Industrial Psychology
(Vroom, 1964)
- Supervision
- Work group
- Job content
- Wages
- Promotional opportunities
- Work hours

Shared Variables
- Wages/salary satisfaction

Dimensions,
Higher Education
(Smart, 1990)
- Organizational satisfaction
- Salary satisfaction
- Career satisfaction

Job Satisfaction:
HRD Perspective

Job Satisfaction:
Higher Education Perspective

Output
Turnover intentions

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What Is Job Satisfaction?

The field of psychology is typically considered foundational to the field of HRD (Hatcher, 2000; Swanson & Holton, 2001; Yang, 2004). Vroom, an industrial psychologist, describes job satisfaction as the valence a person has of his or her job, where valence is an affective measure of positive or negative value a person has about an outcome (e.g., employment) (1964). Vroom's summary of research findings on the determinants of job satisfaction yield these determinants: supervision, work group, wages, job content, promotional opportunities, and work hours. More specifically:

> A work role most conducive to job satisfaction appears to be one which provides high pay, substantial promotional opportunities, considerate and participative supervision, an opportunity to interact with one's peers, varied duties, and a high degree of control over work methods and work pace. (pp. 172-173)

HRD scholars define job satisfaction as the "degree to which an individual enjoys his or her work" (Brewer & Clippard, 2002, p. 173) as reflected by his or her attitude toward the job (Bartlett, 2001; Brewer & Clippard, 2002), an attitude that has been shaped by "comparing desired outcomes with actual outcomes" (Egan, Yang, & Bartlett, 2004, p. 283). The higher an individual's job satisfaction, the lower his or her intentions will be to leave the organization (Bartlett, 2001; Egan et al., 2004). In addition, job satisfaction is positively affected by the organizational culture and structure that emphasize participative management, participative decision-making, and employee empowerment (Egan et al., 2004).

Turnover intention is "conscious and deliberate willingness to leave the organization" (Egan et al., 2004, p. 286). Because job satisfaction is inversely related to turnover intentions (Bartlett, 2001; Egan et al., 2004) and because turnovers are expensive to organizations, studies appear to investigate the relationship between various variables, job satisfaction, and turnover intentions. For example, Bartlett (2001) studied the relationship between access to training, job satisfaction, and organizational commitment, where organizational commitment was defined as an employee's commitment to remain with the organization based on emotional attachment (affective commitment), potential costs of leaving (continuance commitment), and personal values on obligations to remain (normative commitment). The results of the study were: (a) job satisfaction was a precursor to organizational commitment, and (b) access to training did influence the affective commitment but was mediated through job satisfaction.

Job Satisfaction from the Higher Education Perspective

Similar to the studies of job satisfaction in the field of HRD, faculty job satisfaction in higher education seems to be explored to determine a relationship between various variables, job satisfaction, and turnover intentions. While studies acknowledge some turnover is positive in that the fresh thoughts of new faculty members can rejuvenate an environment, excessive turnover is costly (Ambrose, Huston, & Norman, 2005; Daly & Dee, 2006; Johnsrud & Rosser, 2002; Rosser, 2004). Furthermore, faculty intentions to leave is the best predictor of the actual turnover behavior (Rosser, 2004; Smart, 1990).

Matier's (1990) study assessed his inertial synthetic model for predicting what will cause faculty members to leave an institution. This model was based on a set of job satisfaction variables for determining a desire to move and another set of variables for determining ease of movement. The factors reported as important to job satisfaction were: (a) internal environmental factors (intangible benefits such as personal reputation, institutional reputation, autonomy, influence, and sense of belonging; tangible benefits such as wages, facilities, work rules, and fringe benefits) and (b) external environmental factors (benefits not related to work such as quality of life, family, friendships, and financial considerations not related to the job).

Smart's (1990) study focused on assessing a causal model on faculty intentions to leave. His model stated that the faculty intentions to leave were based on various exogenous variables such as age, marital status, and organizational decline; work environment variables such as governance participation, research productivity, and salary; and job satisfaction variables comprised of organizational satisfaction, salary satisfaction, and career satisfaction. The factors reported as being important to job satisfaction can be further detailed by considering the elements that comprised organizational satisfaction: (a) institutional satisfaction of intellectual environment, faculty-student ratio, salary, teaching load, administration and (b) departmental satisfaction of departmental intellectual environment, personal relations among faculty, and academic quality of students.

Rosser's (2004) study analyzed the survey responses to 1999's National Study on Postsecondary Faculty (NSOPF) of 2- and 4-year private and public institutions. Her aim

was to test a conceptual model of faculty work life, job satisfaction, and intent to leave.

Faculty work life included four dimensions: (a) technical support, (b) administrative

support, (c) community and service work, and (d) professional development. Job

satisfaction included three factors: (a) satisfaction of student advising and course loads,

(b) benefits (e.g., retirement), and (c) job security. The finding from this study was

faculty work life influences job satisfaction, which in turn influences the intent to leave.

Rosser makes a direct connection between the demands of teaching using educational

technology and faculty work life:

> Encouraging faculty members to use technology to enhance their teaching and
>
> student learning is important. … While most faculty members perceive the use
>
> and application of technology as paramount, technology does come with a cost,
>
> and usually that cost amounts to faculty members' time, and often the price is
>
> scholarship or student advising and mentoring. Those colleges and universities
>
> who tout themselves as "technology" institutions must go beyond the rhetoric
>
> and provide the necessary means and support for faculty members to conduct and
>
> accomplish their academic work in an effective and efficient manner. More than
>
> ever, technology support has become an integral aspect to the quality of faculty
>
> members' work life. (p. 301)

Summary of Job Satisfaction

Job satisfaction is an affective measurement that describes the extent to which an

employee is positively or negatively satisfied with his or her job as determined by

multiple factors such as internal environmental factors, organizational culture, and

faculty work life (Egan et al., 2004; Matier, 1990; Rosser, 2004). The greater the job satisfaction, the less likely an employee will intend to leave and the more likely that employee becomes committed to the organization. For faculty members in higher education, the variables that affect job satisfaction include autonomy, relationships with colleagues, and teaching load (Matier, 1990; Rosser, 2004; Smart, 1990). Faculty work life affects job satisfaction which, in turn, affects turnover intentions (Rosser, 2004).

<div align="center">Summary of the Literature Review</div>

This chapter reviewed academic capitalism and teaching using educational technology, at least two phenomena that appear to be pervasive today in an organization called *public research university*. In addition, the affective dimension of job satisfaction was also reviewed from both the HRD and higher education perspectives. These three constructs—academic capitalism, teaching using educational technology, and job satisfaction—are germane to this dissertation study aimed at coming to understand the experience of a specific group of human capitals, the tenured faculty and those on tenure track, as they teach using educational technology in the current academic capitalism era. The following chapter, *Chapter III*, describes the methodology used to carry out the study.

CHAPTER III

METHODOLOGY

This chapter details the methodology for this study. The overview of the five components that comprise methodology—theoretical paradigm (Denzin & Lincoln, 2005), research strategies, participant and site selection, data collection and analysis, and trustworthiness—are provided as well as the specific methodology for this study.

Theoretical Paradigm

Paradigms are "overarching philosophical systems" (Lincoln, 2005, p. 230) or a paradigm is "the net that contains the researcher's epistemological, ontological, and methodological premises" (Denzin & Lincoln, 2005, p. 22). The theoretical paradigm that guides conventional inquiry is positivism; interpretive or naturalistic inquiry is interpretivism or constructivism; and critical inquiry is critical theory (Denzin & Lincoln, 2005; Guba & Lincoln, 2005; Lincoln & Guba, 1985).

Geertz predicted more than 10 years ago that the different genres, or paradigms, would blur, and his forecast has come true (Guba & Lincoln, 2005). Guba and Lincoln state "indeed, the various paradigms are beginning to 'interbreed'" (p. 192) and inquiries can be guided by multiple paradigms: "a personal example is our own work, which has been heavily influenced by action research practitioners and postmodern critical theorists" (p. 192).

This section first provides an overview of the three paradigms—positivism, interpretivism, and critical theory—that can guide an inquiry. This overview serves as a

rationale for the subsequent discussion on why a blended genre of interpretive critical inquiry was selected as the theoretical paradigm for this study.

Positivism, Interpretivism, and Critical Theory

Given that a paradigm is a philosophical system comprising ontology, epistemology, and methodology (Denzin & Lincoln, 2005; Lincoln, 2005), three paradigms—positivism, interpretivism, and critical theory—will be described and contrasted by their underlying ontology, epistemology, and methodology. In addition, each paradigm's axiology will be described since axiology is also a part of the philosophical system (Carpenter, 2002).

Ontology, or "theories of reality" (Lincoln, 2005, p. 230), poses the question *What is reality?* (Carpenter, 2002; Ruona, 2000). Epistemology, as a study of the nature, source, and validity of knowledge, poses the question *How do we know?* Methodology, also known as strategy of inquiry, is the approach to carrying out an inquiry, and includes the "assumptions, principles, and procedures" (Schwandt, 2001, p. 161) that guide the researcher (Denzin & Lincoln, 2005). Inquiry, a word that refers to "a quest for knowledge, data, or truth" (*American Heritage Dictionary*, 2000, para. 3) is synonymous with research, and "research is an orderly investigative process for the purpose of creating new knowledge" (Swanson, 2005, p. 4). Examples of methodology are case study, ethnography, phenomenology, grounded theory, life history, action research, and clinical research. Axiology, comprised of ethics and aesthetics, addresses how values come into play in an inquiry (Carpenter, 2002; Lincoln & Guba, 1985).

Positivism

Attributed to the French philosopher Compte as having coined the term, positivism is a form of naïve realism (ontology) and naïve empiricism (epistemology) that applies the scientific method (Guba & Lincoln, 2005; Merriam, 1991; Schwandt, 2001). Naïve realism refers to an ontology that there is one reality or world external and independent of our minds which can be studied in individual parts (Lincoln & Guba, 1985; Schwandt, 2001). Naïve empiricism states that the world can be objectively studied through the experiences of the senses: observation and experiment. Scientific method, also called the hypothetico-deductive method, tries to explain human behavior through nomothetic, or lawlike, generalizations that follow a process of (a) forming theory-based hypotheses, (b) logically deducing predictions about the human behavior that will be observed, (c) testing the predictions through empirical observations, (d) concluding whether the theory explains the behavior or not (consistent or inconsistent with the facts measured), and (e) based on the results of the observations, keep, discard, or modify the theory (Schwandt, 2001). The assumption of positivism is that an inquiry can be carried out without the influence of a value system (axiology) (Lincoln & Guba, 1985). Table 13 summarizes the components of positivism.

Table 13. Summary of Positivism

Ontology	Epistemology	Methodology	Axiology
Naïve realism - one reality external and independent of our minds, capable of being studied in parts	Naïve empiricism – reality is objectively studied through the senses (observation and experiment)	Hypothetico-deductive method, scientific method, nomothetic, experimental, measuring and quantifying (quantitative)	Free from influence of a value system

Interpretivism

Rooted in various fields and philosophies such as hermeneutics, semiotics, phenomenology, symbolic interactionism, and the Chicago school of sociology, interpretivism emerged as a paradigm with an ontology, epistemology, methodology, and axiology opposite of positivism (Carr & Kemmis, 1985; Denzin & Lincoln, 2005; Lincoln & Guba, 1985; Merriam, 1991; Schwandt, 2001). Interpretivism opposes the positivism's ontological view that there is one reality, external to the mind, and capable of being studied in parts. Instead, interpretivism proposes a relativist world of multiple realities that are constructed and co-constructed by the mind(s) and required to be studied as a whole. Rather than the objective facts that are measured by the researcher, interpretivist epistemology seek out subjective beliefs that are co-created between the researcher and the researched, where the "knower and known are interactive, inseparable" (Lincoln & Guba, 1985, p. 37). Interpretivism aims "to replace the scientific notions of explanation, prediction and control, with the interpretive notions of understanding, meaning and action" (Carr & Kemmis, 1986, p. 83). The methodologies typically carried out in interpretive inquiry include those ideal for coming to understand

the lived experiences of the researched. These methodologies include case study,

ethnography, participant observation, phenomenology, ethnomethodology, life history,

and historical method. The assumption regarding axiology in interpretivist inquiry is

value laden. Table 14 below summarizes interpretivism.

Table 14. Summary of Interpretivism

Ontology	Epistemology	Methodology	Axiology
Relativism – multiple realities based on who constructs and co-constructs them	Co-created subjectivist beliefs	Hermeneutical, coming to understand the meanings of lived experiences	Value laden, and leading to informed action

Critical Theory

Many thinkers have helped shape the paradigm of critical theory. Those

frequently cited include the German philosophers Hegel, Marx, and the Frankfurt School

(Horkheimer, Adorno, Marcuse, Benjamin, Fromm, and Habermas) (Merriam, 1991;

Schwandt, 2001). However, other philosophers and theorists such as Foucault, Derrida,

and Freire have also helped shape the paradigm (Kincheloe & McLaren, 2005). The

main tenet of research based on critical theory is the emancipation of those researched

by making aware of their oppression based on social, cultural, political, economic,

gender, sexual, ethnic, or racial values (Guba & Lincoln, 2005; Merriam, 1991;

Schwandt, 2001). To bring about emancipation, the researcher engages in dialogues with

the researched, and in praxis, the socially conscious action that emerges and becomes

enmeshed with the ways of living of the researcher and those researched. The ontology

is historical realism, "virtual reality shaped by social, political, cultural, economic,

ethnic, and gender values, crystallized over time" (Guba & Lincoln, 2005, p. 193). The epistemology is subjectivist, formed between the researcher and the researched, and aims for emancipation from the oppression. The methodology is dialogic, and axiology is more than value laden, in that the inquiry is prompted and guided by the researcher's values. Table 15 below summarizes critical theory.

Table 15. Summary of Critical Theory

Ontology	*Epistemology*	*Methodology*	*Axiology*
Historical realism	Subjective, emancipatory, allowing fundamental social change	Dialogic	More than value laden, leading to social change

Interpretive Critical Inquiry

Interpretive critical inquiry, then, draws from both the interpretive and critical theory paradigms, is an example of Geertz's blurred genres, and could be seen as a response to the criticism that interpretivism's aim of coming to understand the lived experiences of the researched stops short of questioning how their world is so and what can be done to address any social conflict in their world: "In particular, it is argued that the interpretive model neglects questions about the origins, causes and results of actors adopting certain interpretations of their actions and social life, and neglects the crucial problems of social conflict and social change" (Carr & Kemmis, 1986, pp. 94-95). Therefore, interpretive critical inquiry is a form of interpretive inquiry carried out with praxis or social change as a goal. The following characteristics are also inherent in the interpretive critical inquiry (Guba & Lincoln, 2005; Lincoln & Guba, 1985).

1) Aim of inquiry is not to generalize but to develop working hypotheses.

2) Cause-effect relationship is impossible as human behavior is embedded in context and time.

3) The researcher is the human instrument, guided by the ethics of not marginalizing the researched in any way (Guba & Lincoln, 1981).

4) Knowledge formed provides vicarious experience.

5) Trustworthiness, authenticity, and catalyst for action form the criteria for judging for quality and goodness (Guba & Lincoln, 1989).

Theoretical Paradigm and Rationale for This Study

The underlying theoretical paradigms of my study were interpretivism and critical theory, and thus, the inquiry was interpretive critical. The rationale behind the blurred genre of interpretive critical inquiry will be explained from the perspective of human resource development (HRD) and from the experience of conducting a pilot case study on understanding the faculty experience.

Rationale from the HRD perspective. Everything about HRD involves people. The domains of outcome comprise people (e.g., individuals, groups, organizations) (Swanson & Holton, 2001); the HRD professionals are people; the work carried out involve changing people (e.g., HRD as organizational change agent/interventionist, organizational empower/meaning maker, developer of human capital [Watkins, 2001]). While there may be situations when conducting a conventional inquiry would be appropriate (e.g., did the hard drives of the computers of one department that were turned off at the end of a day crash less than those of another department whose

computers were not turned off?), for the most part, interpretive inquiry may be more amenable to inquiries in HRD because the widgets in HRD are humans whose behavior cannot be predicted or controlled and who are themselves context and time sensitive (Lincoln, 2005; Lincoln & Guba, 1985).

The questions I raised concerning teaching using technology were not about *counting* how many faculty members had adopted educational technology or *measuring* whether or not teaching using technology was more effective for students than teaching traditionally without technology. While these may be valid questions for some, I was more interested in learning about the lived experiences of faculty as they tried to teach using technology. I assumed there would be multiple realities, where one faculty member's experience would be different in some way from another. I was not striving for an objective truth but expected through subjective transactions between me, the human instrument, and the faculty members, the researched, we would co-create some understanding which could be used to inform meaning and desired action. I was not aiming to generalize the findings, or provide cause-effect explanations, but rather, to provide enough thick description to make transferability possible (Lincoln & Guba, 1985).

Rationale from the pilot case study perspective. The need for a critical perspective was determined from a pilot case study I conducted for a research course on naturalistic inquiry which I completed as part of my doctoral coursework. From conducting that pilot case study, I came to understand that faculty can experience much anguish and can feel burdened by teaching using technology. Even those faculty

members who believed that educational technology could be an effective learning resource and cognitive tool, and have therefore adopted it, were hampered by the social system of the higher education. For example, when faculty are typically rewarded for research and publication efforts, more so than their teaching (Sutton & Bergerson, 2001; Hearn & Holdsworth, 2002), and teaching using technology is a time-consuming process, what parts of the system of higher education need to be changed in order to accommodate or encourage those who want to teach using technology? Is the system oppressing the faculty—a highly educated workforce—by expecting them to teach using technology but not rewarding (or worse, penalizing) them for the time spent doing so? Attending to these questions appeared to require a critical approach.

Research Strategies

The two research strategies for this study were social phenomenology and ethnography. Social phenomenology, attributed to Schutz, is aimed at providing the explanations for how we produce and experience our ordinary daily lives (Schwandt, 2001). Ethnography is a strategy for "describing a culture" (Spradley, 1980, p. 3). Together, these research strategies guided me in trying to understand the culture of public research universities and how the faculty members produce and experience the daily lives of teaching using educational technology.

Site Selection

The research sites were two public research universities, University A and University B, of one system of higher education located in the south central region of the US. Based on the latest Carnegie Classification system that uses the enrollment figures

of the fall 2004 semester (The Carnegie Foundation for the Advancement of Teaching,

2007), University A is a large, comprehensive doctoral research institution with an

enrollment figure of around 40,000. University B is a majority graduate, professional,

and special-focus institution with an enrollment figure of around 1,000. Both universities

are located in the same city, a growing college town of population greater than 80,000.

Based on this city government's website, more than 50% of the residents 25 years old or

older earned at least an undergraduate degree.

University A

Founded in the last quarter of the 1800s, University A is a land-grant institution

with 10 colleges ranging from agriculture, architecture, business, education, engineering,

to liberal arts. Ranked by the Carnegie Classification system as a research university, its

annual research activities exceed $500 million (The Carnegie Foundation for the

Advancement of Teaching, 2007). Based on the Fall 2006 semester figures available

from the website of the university's institutional studies and planning office, the total

number of tenured or tenure track faculty was 1929. Those on non-tenure track were

858. Figure 2 displays these numbers graphically.

Figure 2. Number of Tenured/Tenure-track and Non-tenure Track Faculty at

University A
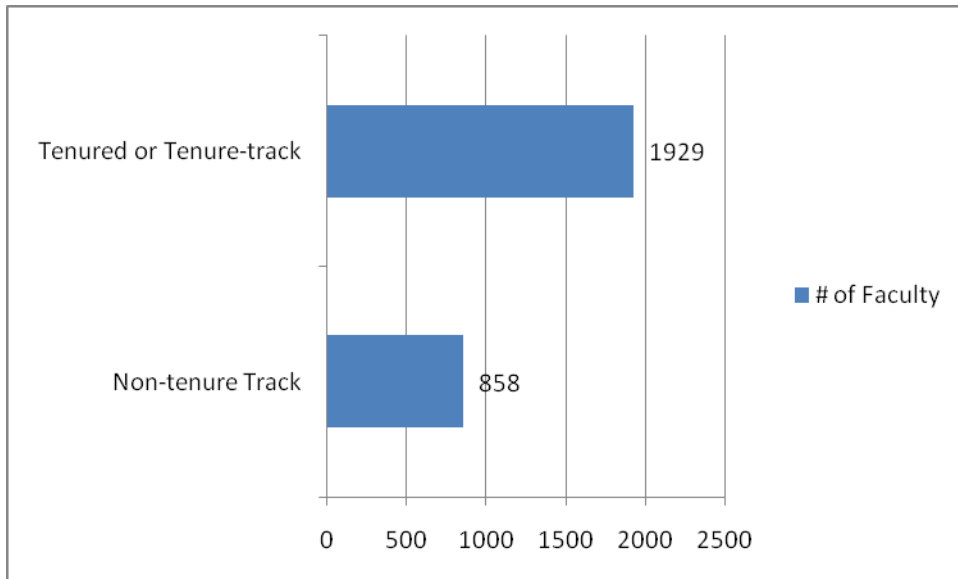
The average age of the assistant professors was 37.7, associate was 48.5, and full was 57.5. The average age of non-tenure track faculty was 45.8. The faculty members were predominantly male: 77.6% male and 22.4% female. In terms of faculty race or ethnicity, University A was a predominantly white institution. The institution's Fall 2006 data available at its website categorized the tenure-track faculty in this manner: 74.4% were white, 2.7% were black, 4.9% were Hispanic, 8.1% were Asian, 0.3% was American Indian, and 9.5% were international. Figure 3 displays the percentages of faculty by race/ethnicity.

Figure 3. Faculty Race/Ethnicity at University A
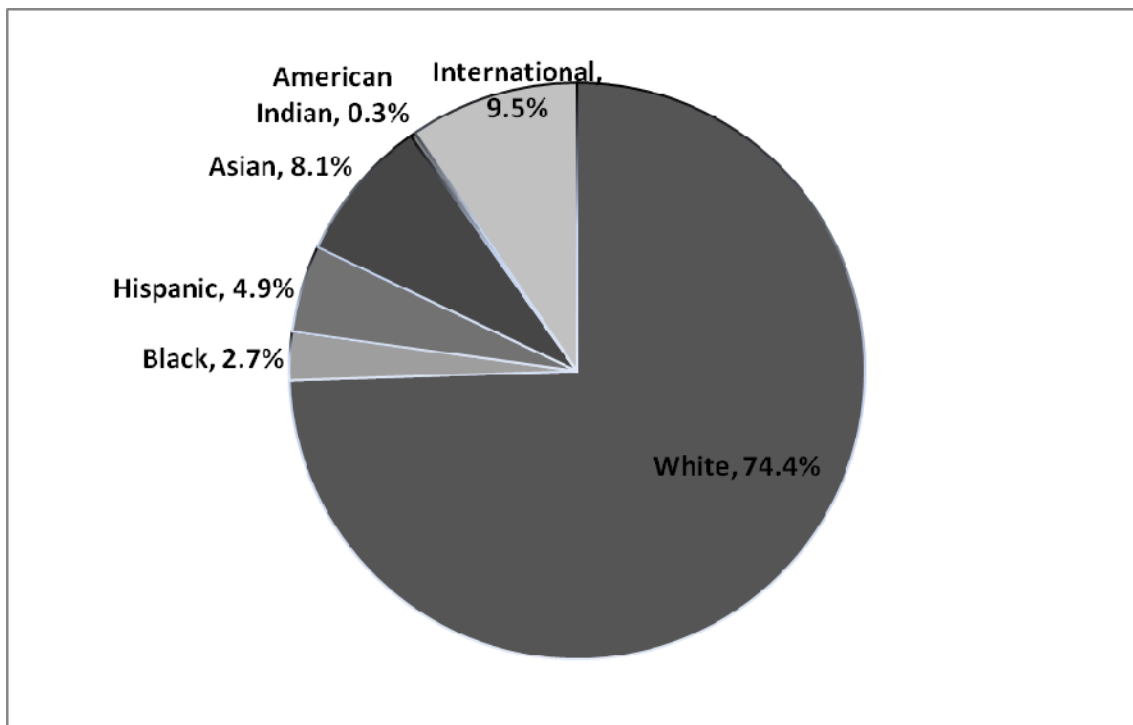
Of the total number of undergraduate, masters, Ph.D., and professional students during the Fall 2006 semester, the race/ethnicity distribution was 73.6% white, 3% black, 10.9% Hispanic, 3.8% Asian, 0.5% American Indian, 7.8% international, and 0.5% unknown or other. The gender distribution was 47.3% female and 52.7% male.

University B

Unlike University A, University B provided much fewer facts and figures at its website. Thus, the amount of data to report regarding University B was smaller than those reported on University A.

According to the facts found at the University B website, it was officially established in the 1990s as a health professions university. Although it has been in

existence as a consolidated entity for only a decade or so, some of its components have been in existence for a longer period. For example, its dental school was founded in the early 1900s and its medical school was founded in the 1970s. Today, University B comprises six schools or colleges and two centers. Of these components, two are located in the same city as University A. One of the two was a research site. The remaining six components of University B are located throughout the south central region state.

University B's most recent annual report was based on the 2005 data. According to this annual report, University B employed a total of 1,199 faculty members across the six schools and colleges; a total of 1,169 students were enrolled in the six schools and colleges.

<div align="center">Participant Selection</div>

The participants were selected based on purposive sampling and were faculty members on tenure track who were actively engaged in teaching using educational technology. My aim was to invite faculty members who were faced with the conflicting demands of academic capitalism (i.e., to be productive awardees of externally funded research grants) and teaching using educational technology (i.e., an endeavor riddled with many barriers). I planned to start with a pool of 10 faculty members as study participants and continue the process of contacting more faculty members until the assessment of the emerging richness of the data indicated no further participants were needed (Lincoln & Guba, 1985). Indeed, collecting data from the 10 study participants did generate a rich set of data and no further participants were needed.

Purposive sampling is a method of identifying study participants who are chosen based on extreme cases, typical cases, maximum variation cases, critical cases, politically important cases, or convenience sampling (Patton as cited by Lincoln & Guba, 1985). The criteria for purposive sampling I used for this study included extreme, critical, and politically important cases. Extreme cases are those that are "particularly troublesome or enlightening" (Lincoln & Guba, 1985, p. 200), critical cases are those that allow "maximum application of information" (Lincoln & Guba, 1985, p. 200) because information elicited from critical cases are such that other cases will also yield similar information, and politically important cases are those that can bring attention to a study. These three criteria seemed appropriate for identifying faculty who were faced with the conflicting demands of academic capitalism and teaching using educational technology. Thus, I invited faculty members who were committed to teaching using educational technology and whose perceptions included (a) a large amount of time devoted to preparing educational technology course materials (extreme case), (b) a rich experience of teaching using educational technology (critical case), and (c) an experience of an adverse consequence as a result of their commitment to teach using educational technology (political case).

Participant Selection Process

I began identifying the possible participants before I received the Institutional Review Board (IRB) approval of my research study so that I might immediately begin to collect the data when I received the approval. I identified the possible participants through the help of two service units at University A: the teaching excellence unit and

the instructional technology support unit. My dissertation committee co-chairs and committee members suggested contacting these two service units as a starting point because the staff there would be aware of faculty members who taught using educational technology at both University A and University B. I emailed either the director or associate director of both units and was provided with 23 names of potential participants. In addition to the 23 leads, I planned to invite two faculty members who had participated in my pilot case study for the naturalistic inquiry course.

Reviewed Faculty Status

Once I received the names of the 23 potential participants, the next step in carrying out my purposive sampling criteria was to check to see if they were tenured or on tenure track. I used University A's directory of faculty, which also provided information about the faculty from University B, to check the titles of the potential participants. I considered the faculty whose titles were assistant, associate, and full professors as being on tenure track or tenured. I considered those whose titles started with *Clinical* (e.g., clinical associate professor) or whose titles indicated a staff position (e.g., *Director*) as non-tenure track. This process yielded 14 tenured or tenure-track faculty members. The interesting point at this stage was the lack of assistant professors who were on the list. Of the total 23 names recommended, only one was an assistant professor.

Emailed Invitations

I had a pool of 16 (14 suggested names plus my two prior case study participants) faculty members to invite. However, I emailed an invitation to 15 faculty members; I

omitted one potential participant by error and did not discover this oversight until I started to analyze the data. Of the 15 I invited, one faculty member informed me that he was not on tenure-track. I was not sure of the tenure-track status of his *Lecturer* title so I had invited him. Another one indicated that he may be able to participate but he did not participate after all. Four responded that they would participate. Eight did not respond at all.

Attended Users' Group Meeting

I attended a users' group meeting of a course management system (e.g., Blackboard, Moodle, and ANGEL) available to both University A and University B. I was able to speak briefly about my research study and distributed a flyer with my contact information. Please see Appendix A for a copy of the flyer. Speaking about my study at this meeting resulted in three additional participants who fit my purposive sampling (two accepted my invitation at the meeting and one of the two referred a third one).

Visited University A's Distance Education Website

I visited University A's distance education website to learn about programs that may be delivering their courses using educational technology. I emailed the faculty of programs I found at the website. This effort yielded two additional faculty members.

Asked Participants to Suggest Potential Participants

During my interviews, I asked the participants to suggest other potential participants. This approach yielded one additional participant.

Total Participants

Table 16 lists the total number of faculty members, 10, who participated in my study. The table lists each participant's pseudonym, university affiliation (University A or University B), title, gender, race/ethnicity, and how I recruited the participant. They are listed in the chronological order in which I interviewed them.

Data Collection

The data collection occurred over an 8-month period between April and December 2007. The three methods of data collection used for this study were (a) ethnographic interviews, (b) participant observations, and (c) document analyses. The ethnographic interviews took place between May and June 2007, the participant observations took place between April and May 2007, and the document analyses took place between April and December 2007.

An *ethnographic interview* is a method of collecting data from study participants by carrying out conversations with explicit purposes (Spradley, 1979). The researcher starts by asking questions intended to build rapport with the participant and subsequently asks questions to elicit information about the participant's culture. *Participant observation* is the process of engaging in the typical activities of a social situation with the purpose of observing the people and activities of the situation (Spradley, 1980). *Document analysis* involves obtaining documents and records appropriate for a study and analyzing and interpreting the data obtained from them (Schwandt, 2001). The specifics of how these three data collection methods were used for this study are described following Table 16.

Table 16. Study Participants

#	Pseudonym	University	Title	Gender	Race/Ethnicity	How Recruited
1	Larry Smith	A	Professor	Male	White	Referral by service units
2	Erica Baker	A	Associate Professor	Female	White	My prior case study
3	Sheryl Caldwell	A	Associate Professor	Female	White	Users' group meeting
4	Jonathan Wilson	A	Professor	Male	White	Users' group meeting
5	Theresa Wells	B	Associate Professor	Female	White	Referral by service units
6	Peter Jones	A	Professor	Male	White	Distance education website
7	Michael Johnston	A	Professor	Male	White	Referred by participant #3
8	Carl Andrews	A	Professor	Male	White	Distance education website
9	Lindsay Reeves	B	Associate Professor	Female	White	Referred by #5
10	James Williams	A	Associate Professor	Male	White	My prior case study

Ethnographic Interviewing

Once I received the IRB approval to start my data collection, I scheduled the interviews. At each interview meeting, I provided the participant with the IRB approved information sheet about my study prior to launching the ethnographic interview. The interview lengths ranged between 40 minutes and one hour and 50 minutes; the average length was approximately one hour and 10 minutes. I interviewed eight participants in their offices and two at a neutral location. The two participants were interviewed at a neutral location because, initially, I thought our IRB regulations required the interviews to take place away from the participants' office. However, a phone call to the IRB office revealed that I could interview the participants in their office. Therefore, eight were interviewed in their office.

Recording the Interviews

The interviews were audio recorded on two devices, a Sony® microcassette tape recorder and a Sony® digital recorder with 256 megabytes (MB) of built-in memory. As a backup to the audio recordings, I also handwrote the interview conversations in my interview journal. The drawback of writing down the conversations was that I was so absorbed in capturing the participant words that I neglected to record my observer's comments. In hindsight, writing the interview conversations seemed to have been overly redundant. However, I did find that the act of writing down the conversations yielded an unforeseen advantage: a forced pause. Later, as I listened to the audio recordings to transcribe the interviews, I realized the conversations were interweaved with very brief segments, around 15 seconds or less, when I was busy writing and the participants were

waiting for me to finish. This waiting period seemed to have resulted in a forced pause

allowing the participants to perhaps think further on what they had just said because

after I finished writing, they often delved deeper and elaborated on the point they had

just made. Therefore, in my future research studies, I plan to take handwritten notes as a

pause-tool for helping the participants to reflect, but rather than writing the interview

conversations, I may record my observer's comments. More details on the process I used

to transcribe the interviews will be described in a section below.

Interview Protocol

Not surprisingly, of the three data collection methods, the interviews produced

the most illuminating data because as a human instrument, I was able to ask, probe, and

tailor the interviews in a manner appropriate for each participant as well as my research

questions. Although I followed an interview protocol with three sets of predetermined

questions, I allowed the unfolding conversation with each participant to sequence the

order in which the questions were asked. Please see Appendix B for the interview

protocol.

Transcribing the Interviews

The Sony® digital recorder I purchased, model ICD-P520, came bundled with the

software Digital Voice Editor version 3.0. I found this software very helpful in

transcribing the interviews. After each interview, I connected the digital recorder to my

laptop using a Universal Serial Bus (USB) cable and used the voice editor software to

copy the interview recordings on the digital recorder to my laptop hard drive. I placed

each interview file in a separate folder on my laptop. Since these interview files were in

a proprietary format, as a safety measure, I also created a copy of the files in an MP3

format, a more universal audio file format that can be played back on many common

audio devices such as a CD player.

One of the functions in Digital Voice Editor 3.0 was *Transcribing*. Once an

interview file was copied to my laptop, I selected that file and pressed the Transcribing

option. Digital Voice Editor would display a text editor, Windows Notepad, as well as a

tool bar containing the start, stop, pause, fast forward, and rewind buttons. Most of these

tool bar functions were also accessible by using the keyboard function keys. In addition,

Digital Voice Editor provided a feature to slow down the playback speed to as slow

as -75%. Thus, the transcribing process entailed listening to the interviews from my

laptop with an ear-bud headphone at a slowed down playback speed of about -30%,

typing what I heard directly into Windows Notepad, and pressing the functions keys F11

to stop and F10 to restart, and CTRL and left or right arrow key to incrementally rewind

or fast forward, respectively. Being a very slow transcriber, I found the voice editor a

helpful tool. After transcribing the fifth interview or so, I was able to transcribe at a rate

of approximately five hours for every hour of interview conversation.

Phases in Transcribing the Interviews

I followed a 3-phase process in transcribing the interviews. The first phase was

using the Digital Voice Editor to create a Windows Notepad file containing the almost

verbatim interview conversation. This file was almost verbatim because I omitted filler

words such as *um* or *uh*. The second phase entailed converting the Windows Notepad

transcript file into a Microsoft Office Word file. Once converted into a Word file, I

checked for misspelled words and added a header that included on the left-hand side a participant's pseudonym, interviewee number, interview date and time and on the right-hand side the page number of the interview transcript. I considered this second phase file a *pure file*. The third phase was when I reviewed the Word interview transcript from the second phase and changed most of the identifying information such as names and places. For example, when a participant said the actual name of University A, I changed that actual name to *this university*. Or, when a participant mentioned a colleague's name, I changed that name to a pseudonym or to *a colleague*. I also edited for obvious grammatical errors that can occur in the spoken English language such as verb tense mismatch or singular/plural noun and verb mismatch. However, in one case, I did not change an interviewee reference to two countries, Spain and Japan, as places she grew up because disguising those countries in that context made the resulting text meaningless. I considered this third phase file the *final transcript* for conducting member-checking and for analyzing the interview data.

<div align="center">*Participant Observation*</div>

The purpose of the participant observations was to allow another perspective for collecting the data (Lincoln & Guba, 1985) on how the participants teach using educational technology. During the spring and summer 2007 semesters, the period when I conducted the interviews and participant observations, some participants used educational technology to supplement their face-to-face class meetings (Interviewees #1, 3, 4, 5, 7, and 10) while others taught strictly online (Interviewees #2, 6, 8, and 9). Of the six participants who met with their students face-to-face, I was able to observe a

class meeting of three (Interviewees #3, 5, and 10). I kept field notes of the participant

observations in order to record the details of my experience of the observations as well

as to record what I saw during the observations (Emerson, Fretz, & Shaw, 1995). In

addition to the classroom observations, I obtained a guest account to review Interviewee

#3's supplemental course website. Of those who taught strictly online, I obtained access

to review three course websites, those of Interviewee #2, 6, and 8. These participant

observations will become useful in *Chapter IV, Data Analysis and Results*, when what I

observed will be included as thick descriptions (Geertz, 1973).

Document Analysis

Pertinent documents of the study participants and of University A and University

B were sought, reviewed, and analyzed for another perspective on the data (Lincoln &

Guba, 1985). For example, documents such as the course syllabi, faculty curriculum

vitae, college policies and procedures manual, and institutional facts were reviewed as

well as informative external documents such as the Carnegie Classifications (The

Carnegie Foundation for the Advance of Teaching, 2007). The process I used involved

looking for facts that either served to fill a gap or confirm the interview data. For

example, one faculty member was not sure of the year he became tenured and suggested

I review his curriculum vitae available on the Web. Doing so allowed me to find the

exact year. As another example, I retrieved and reviewed a college's policies and

procedures manual to better understand the performance evaluation criteria of tenure-

track faculty of that college.

Data Analysis

I analyzed the interview data using the content analysis technique as described in Lincoln and Guba (1985). The process I followed entailed five broad steps: (a) unitizing the interview data, or, identifying the individual units that subsequently are grouped into themes (Lincoln & Guba, 1985); (b) coding the units; (c) identifying the categories of similar units; (d) noting the emerging themes; and (e) subdividing the themes into subthemes. The specifics of this process are provided in the following paragraphs.

Unitizing the Interview Data

The sources for the unitizing process were the *final transcript*. In one case, the final transcript was slightly edited by a participant after he reviewed his interview transcript for the purpose of member-checking. The details on member-checking are provided in the *Trustworthiness* section later in this chapter.

My plan was to print the units of data on 5" x 8" index cards and comb-bind the cards on top. Therefore, I reformatted the source files from letter size (8.5" x 11") to 5" x 8". Then, I increased the font size from 12 points to 14 points for easier legibility and also increased the top margin to allocate space for comb-binding. I added a header that included the interview number, interviewee pseudonym, interview date, interview time, and the index card number. I also used Microsoft Word's line numbering feature to number each line to facilitate locating a piece of text at a later time, if necessary.

Once a final transcript was reformatted to fit the 5" x 8" index cards, I read through the transcript and created a hard page break whenever I identified a unit of data. This step resulted in separating the units of data by forcing a new unit to start on a new

index card. However, because some units of data spanned multiple index cards, I added a visual demarcation using horizontal lines: one line was placed at the beginning of a unit, at the top of a card, and another line was placed at the end of that unit. To view an example of a unitized card, please see Appendix C.

Coding the Units

Once all the final transcripts were unitized, I printed each transcript onto the 5" x 8" index cards and had the cards comb-bound at a local print shop, separated into interviews. My initial thought was to code the units by placing color-coded post-it notes on each unit within a comb-bound set of cards. However, my dissertation co-chairs predicted this method of coding would prove to be cumbersome and suggested I unbound the cards. I did.

After unbinding the cards, I reviewed each unit of data, wrote a short summary on a post-it note that served as a code, and affixed the post-it note to the unit. I continued this coding process until I coded the first five interviews.

Identifying the Themes

After coding the first five interviews, I paused to identify the emerging themes by grouping the index cards with similar codes or meanings. After grouping the cards of the first five interviews by similar codes or meanings, I placed each set of related units into a broad umbrella theme and planned to subdivide the broad theme after unitizing and categorizing the remaining five interviews.

Noting the Emerging Themes

Eleven broad umbrella themes emerged. I returned to the remaining five sets of interviews, coded the remaining index cards, and sorted the cards into the 11 themes. No new theme emerged from the last five sets of interviews.

Subdividing the Units in Each Theme

After all 10 interviews were unitized, coded, and categorized into the 11 umbrella themes, I returned to them and subdivided each umbrella theme into subthemes. These themes and their subthemes are listed at the end of this chapter and will be discussed in detail in the following chapter, *Chapter IV: Data Analysis and Findings*.

<div align="center">Trustworthiness</div>

Trustworthiness refers to the quality of an inquiry—whether the findings and interpretations made are an outcome of a systematic process, and whether the findings and interpretations can be trusted (Lincoln & Guba, 1985). At least three sets of trustworthiness criteria have been offered: (a) Lincoln and Guba's criteria for trustworthiness, authenticity, and catalyst for action (Guba & Lincoln, 2005; Lincoln, n. d.; Lincoln, 1995; Lincoln & Guba, 1985); (b) Carr and Kemmis' (1986) four validity claims; and (c) Lather's (1991) four validity criteria. In the following sections, the three sets of criteria are described first, followed by a rationale for selecting Lincoln and Guba's criteria for trustworthiness, authenticity, and catalyst for action as the appropriate trustworthiness criteria for this study.

Lincoln and Guba's Trustworthiness, Authenticity, and Catalyst for Action

The trustworthiness criteria are separated into two categories: a set of criteria termed "parallel methodologic criteria" (Lincoln, 1995, p. 277) that correspond to the rigor criteria of conventional inquiry and "authenticity/ethical criteria" (Lincoln, 1995, p. 277) "which took as their epistemologic basis the claims, concerns, and issues of the new paradigm" (Lincoln, 1995, p. 277). These two categories of trustworthiness criteria are illustrated below in Table 17. The reference sources for Table 17 are Guba and Lincoln (2005), Lincoln (1995), and Lincoln and Guba (1985). Another reference source is a class handout (Lincoln, n. d.) from *EDAD 690N: Naturalistic Inquiry*, taught by Dr. Yvonna S. Lincoln, and the verbal explanations of the criteria she provided during class on November 22, 2005.

Table 17. Lincoln and Guba's Two Categories of Trustworthiness Criteria

Parallel Methodologic Criteria	*Authenticity/Ethical Criteria*
Credibility	Fairness
Transferability	Ontological authenticity
Dependability	Educative authenticity
Confirmability	Catalytic authenticity
	Tactical authenticity

Credibility corresponds to the internal validity criterion of positivism and refers to establishing confidence in the findings and interpretations of a research study. The techniques for assuring credibility include prolonged engagement, persistent observation, triangulation of sources, methods, theories, and researchers, peer debriefing, negative case analysis, referential adequacy, and member checks.

Transferability corresponds to the external validity criterion of positivism. In the conventional inquiry, external validity or generalizability would be assured by measures taken (e.g., randomized controlled trial) to ensure that the findings will be applicable in different contexts or subjects. In interpretivism, generalizability is not an aim; instead, the applicability of the findings and interpretations is to be determined by those who want to apply the findings and interpretations. In interpretivism, this transferability is possible through thick description (Geertz, 1973), where the researcher provides enough description of the context so that the reader can determine whether the findings apply to his or her context.

Dependability corresponds to the reliability criterion of positivism and addresses how the findings and interpretations could be determined to be an outcome of a consistent and dependable process. A technique for achieving dependability is an audit where a designated person reviews the inquiry process as well as the "data, findings, interpretations, and recommendations" (Lincoln & Guba, 1985, p. 318) to check for consistency.

Confirmability corresponds to the objectivity criterion of positivism and refers to how the findings and interpretations are a result of a dependable process of inquiry as well as data collection. The techniques for assessing confirmability include an audit, triangulation, and reflexive journal.

Because the authenticity/ethical criteria are native to interpretivism, they do not correspond to the rigor criteria of positivism. *Fairness* refers to including the views of all stakeholders for a fair balance. *Ontological authenticity* refers to the researched learning

something new about their social condition as a result of the research. *Educative authenticity* refers to facilitating the process of having the different sets of stakeholders learning about each other in order for the group to make an informed judgment. *Catalytic authenticity* refers to the findings of an inquiry serving as an impetus for social change or action. *Tactical authenticity* refers to the researcher serving as an agent of knowledge on how to bring about social change or action given the findings.

Carr and Kemmis' Four Validity Claims

Drawing on Habermas' thoughts on *ideal speech situation*, where those engaged in discourse can participate in "free and open communication" that results in democratic discussions for "emancipation from repressive distortions" (Carr & Kemmis, 1986, p. 142), Carr and Kemmis suggest four validity claims for speech: *truth* in what was said, what was said was *comprehensible*, *sincerity* of speaker, and "*right* for the speaker to be performing the speech act" (p. 141, emphasis in original).

Lather's Four Validity Criteria

Lather (1991) recommends four validity criteria for "praxis-oriented research … for research that is openly committed to a more just social order" (p. 66). The criteria are: (a) *triangulation* of sources, methods, and theories for data trustworthiness; (b) *construct validity* for building social theory for emancipation; (c) *face validity* through member checks; and (d) *catalytic validity* that facilitates the researched to take part in social change.

Trustworthiness Criteria for My Study

Lincoln and Guba's parallel methodologic criteria and authenticity/ethical criteria were adopted as the trustworthiness criteria because Lincoln and Guba's criteria are comprehensive and seemed to include most of Carr and Kemmis' and Lather's criteria. Table 18 details the actual techniques carried out for my study.

Table 18. Trustworthiness Criteria for My Study

Parallel Methodological Criteria	*Authenticity/Ethical Criteria*
Credibility	Fairness
• Triangulation of sources	• Triangulation of sources
• Triangulation of methods	Ontological authenticity
• Triangulation of theories	• The researcher
• Negative case analysis	• Member checks
• Member checks	Educative authenticity
Transferability	• Publications resulting from this research study
• Thick description	Catalytic authenticity
Dependability	• Member checks
• Dependability audit with audit trail (co-chairs served as auditors)	• Publications resulting from this research study
• Reflexive journal	Tactical authenticity
Confirmability	• Member checks
• Confirmability audit with trail (co-chairs served as auditors)	• Publications resulting from this research study
• Reflexive journal	

Triangulation of Sources

This trustworthiness technique refers to eliciting data regarding a topic from multiple sources of the same type in order to determine if different sources provide different information (Lincoln & Guba, 1985). For example, if ethnographic interviewing is the type of data collection method, asking the same question about a topic from different participants would be a triangulation of sources. I carried out this

trustworthiness criterion whenever possible throughout the data collection process. The details of the findings will be described in the following chapter but as an example, when two participants were from the same department, I cross-checked the data gathered from one participant by asking the second participant a question about that piece of data.

Triangulation of Methods

This technique refers to using multiple forms of data collection to ensure accuracy of the data (Lincoln & Guba, 1985). By design, this research study used three forms of data collection methods: interviews, participant observations, and document analyses.

Triangulation of Theories

This technique refers to confirming a piece of data against multiple implicit and explicit theories (Lincoln & Guba, 1985; Y.S. Lincoln, personal communication, December 17, 2007). Although Lincoln and Guba (1985) initially considered this method of triangulation to be "epistemologically unsound" (p. 307), Lincoln's current thoughts are that researchers carrying out naturalistic inquiries do indeed triangulate their data against theories and this method can be used to ensure credibility.

I chose to confirm my data against two implicit theories and two explicit theories. The two implicit theories were: (a) teaching using educational technology is more effective than teaching traditionally without using educational technology; and (b) leadership support (e.g., department chair support) will help alleviate some of the first-order barriers (e.g., lack of technical support personnel) that confound teaching using educational technology. The explicit theories were: (a) human capital theory—economic

gain can be achieved at the individual, organizational, or societal level as a result of investment in the human capital usually in the form of education and training (Becker, 1992; Sweetland, 1996; Schultz, 1961; Torraco, 2001); and (b) technology for social inclusion—attending to physical, digital, human, and social resources is necessary if technology is to be integrated meaningfully into society, or in the context of my dissertation study, into public research universities.

Negative Case Analysis

This technique refers to continuously adjusting the working hypothesis until a fair amount of outlying situations can be accounted for in the working hypothesis (Lincoln & Guba, 1985). For example, my findings seem to suggest that faculty members in departments that provide a strong educational technology support are less burdened by the technological issues of teaching using educational technology and seem to be able to focus on the pedagogical issues. Whenever relevant (e.g., when interviewing faculty members from departments with strong educational technology support), I asked a question directed at understanding where in this continuum of burdened-by-technological-issues and able-to-focus-on-pedagogical-issues a faculty member was.

Member Checks

This technique is where "data, analytic categories, interpretations, and conclusions are tested with members of those stakeholding groups from whom the data were originally collected" (Lincoln & Guba, 1985, p. 314). The end of the third phase produced the *final transcripts* that were deemed ready for the participants to review for

accuracy of the content. I asked each participant to review the transcript to see if their thoughts were captured correctly, if I had hidden their identifying information well enough, and if they were satisfied with the pseudonym I had selected. I gave each participant between three and four weeks to review the transcript and asked each to send me any suggested changes. Of the 10 participants, one requested making changes that rendered him more anonymous, three responded within the allotted time with no change requests, and six did not respond. I consulted my dissertation committee co-chairs regarding the non-responders; their recommendation was to consider the non-responders as having approved their respective transcript.

I also sent the draft of *Chapter IV: Data Analysis and Findings* to the participants to provide them an opportunity to comment on the accuracy of how I described and quoted them as well as to decide if they wanted to omit portions of their quotes. I asked them to reply within 18 days and that I would consider those who do not respond as having approved their respective segments. Five participants responded and no one requested changes to be made.

Thick Description

This technique refers to providing enough details of the context of the research study in order to help a reader determine whether or not the findings are transferable to the reader's context (Lincoln & Guba, 1985). Thick descriptions were collected from the participant observations and document analyses, were introduced in this chapter when the research sites were described, and will be provided again in the next chapter, *Chapter IV: Data Analysis and Findings*.

Dependability and Confirmability Audits with Audit Trails

These techniques were carried out with my dissertation committee co-chairs; they were the auditors. The tools used were the fieldwork memo for data collection and the fieldwork memo for data analysis and findings. After the data collection, I met with my co-chairs and went over the fieldwork memo for data collection that detailed the data collection process. Similarly, a fieldwork memo on the data analysis and findings served as a tool for my co-chairs to conduct the audit on how I arrived at the results of the study.

Reflexive Journal

This technique refers to keeping a journal in which the researcher carries out a conversation with herself or himself on topics related and not related to the research, as in a diary (Lincoln & Guba, 1985). The purpose of the journal is to keep a record of the changes occurring to the researcher—the human instrument and meaning-maker—both about the research and not. I have been writing in a reflexive journal specific to this research study since I began the data collection. I also have another reflexive journal which I began prior to commencing this study, while I was shaping the possible design of this study.

The Interviews

The interviews can be considered as the technique for satisfying the ontological authenticity. During some interviews, in responses to the questions I asked, participants seemed to experience an *aha* moment.

Publications Resulting from This Research Study

Publishing the results of my research study could be considered a technique to satisfy the educative, catalytic, and tactical authenticities. If published, my findings may serve as a vehicle for social change or action either by institutions or by faculty. Toward this end, I plan to prepare and submit three manuscripts to peer-reviewed journals. One manuscript will focus on the implications of my study and findings for HRD, in particular, HRD's role in faculty and administrator development as well as in facilitating organization development in research universities. A second manuscript will target the educational technology community with the goal of informing both the scholars and practitioners the organizational forces resulting from academic capitalism (e.g., promotion and tenure criteria at research universities) that impede faculty adoption and implementation of educational technology into their teaching practices. A third manuscript will be intended for the higher education community and will be written to share the experiences of my study participants. Perhaps the readers who find the narratives applicable and relevant may begin a dialogue, within and across institutions, aimed at bringing about organizational change in research universities. More details about these anticipated manuscripts are provided in *Chapter V: Conclusions, Implications, and Recommendations*.

Summary of Methodology

This dissertation study was guided by the blurred genres (Geertz, 1973) of both interpretivism and critical theory and is thus labeled interpretive critical inquiry. The research sites were two public research universities, University A and University B, both

located in one city in the south central region of the US. Using purposive sampling, I was able to recruit 10 study participants, tenured associate and full professors. I was not able to recruit any assistant professors on tenure-track. Data collection occurred over an 8-month period and made use of three methods: (a) ethnographic interviews, (b) participant observations, and (c) document analyses. The interviews were transcribed and analyzed using Lincoln and Guba's (1985) form of content analysis technique. The trustworthiness criteria selected were Lincoln and Guba's parallel methodological criteria and authenticity/ethical criteria (Guba & Lincoln, 2005; Lincoln, n. d.; Lincoln, 1995; Lincoln & Guba, 1985).

After analyzing the interview data, 11 themes emerged. They are listed below in Table 19 and will be described in detail in the next chapter, *Chapter IV: Data Analysis and Findings*.

Table 19. Themes Identified

Theme
1. Participant attributes
2. Institutional/departmental culture and leadership
3. Professoriate in the research university
4. Promotion and tenure (P&T) guidelines/reward system at the research university
5. Educational technology
6. Distance education
7. Student attributes
8. Academic capitalism
9. Job satisfaction/turnover intentions
10. Implications for HRD
11. About the dissertation study

CHAPTER IV

DATA ANALYSIS AND FINDINGS

I have been waiting eagerly, yet anxiously, to write this chapter. Here is where I begin to share the stories—as they pertain to my research questions—of the 10 study participants and also offer some working hypotheses. As a beginner student of qualitative research, I recall a question I posed to my professor, Dr. Yvonna S. Lincoln, one evening after a class meeting of *EDAD 690N: Naturalistic Inquiry*: if the findings of qualitative research cannot be generalized, why do we bother to do qualitative research? Although the question was a follow-up to the content we had covered that evening, I carefully observed her expressions, concerned that I would be misunderstood as criticizing the methodology. Instead, I was genuinely curious and wanted to absorb her understanding of the topic. She paused for a fleeting moment—during which time I sensed that this question was often posed to her—and she replied graciously and excitedly: the end results of conducting qualitative research such as naturalistic inquiry are the working hypotheses that emerge and the narratives that tell the stories of some human condition from which anyone so inclined can learn (Y. S. Lincoln, personal communication, September 13, 2005).

That moment was an epiphany for me because I could intuitively relate to the value of narratives as data or findings. I was born in the US and spoke only English until my family moved to South Korea when I was four years old. Soon after moving to Korea, I became fluent in Korean but could no longer speak English. My journey to become fluent again in English was a painful and frustrating one because of the number

of years the process required. It began with being enrolled in a first grade English as a

Second Language (ESL) class at the Department of Defense Dependents School system I

attended in Korea for the American military brats. Now I am bilingual, although English

is my dominant language, and I have often wondered *which is my first language—*

English or Korean? I have silently chuckled at my inability to answer that simple

question with a one word response. Rather, the question seems to require a narrative.

Therefore, that evening, hearing Dr. Lincoln's response energized and motivated me.

That one response gave me the power to absolve forward all the critics of qualitative

research whom I had yet to meet because the methodology made perfect sense to *me*. I

also became hopeful that maybe one day I could serve as a messenger of the stories that

make a difference to someone.

The remaining sections of this chapter are *Data Analysis*, *The Participants*, and

The Findings. In *Data Analysis*, I will present a table listing the 11 emerged themes and

their subthemes. In *The Participants*, I will introduce the 10 faculty members who

volunteered to participate in my study. Finally, in *The Findings*, the three research

questions will be addressed using the emerged themes and subthemes.

Data Analysis

After unitizing, coding, and categorizing the interview data, 11 major themes and

multiple subthemes were identified. Table 20 below is included to remind the reader of

the faculty members who participated in this study. All names are pseudonyms. Table 21

presents the 11 major themes and the associated subthemes as well as the participant

identifiers (i.e., the participant numbers I established according to the sequence in which

I interviewed the participants) to relay who contributed with data that led to the emerged

themes and subthemes.

Table 20. Study Participants

#	Pseudonym	University	Title	Gender	Race/ Ethnicity
1	Larry Smith	A	Professor	Male	White
2	Erica Baker	A	Associate Professor	Female	White
3	Sheryl Caldwell	A	Associate Professor	Female	White
4	Jonathan Wilson	A	Professor	Male	White
5	Theresa Wells	B	Associate Professor	Female	White
6	Peter Jones	A	Professor	Male	White
7	Michael Johnston	A	Professor	Male	White
8	Carl Andrews	A	Professor	Male	White
9	Lindsay Reeves	B	Associate Professor	Female	White
10	James Williams	A	Associate Professor	Male	White

Table 21. Themes and Subthemes Identified by Individual Participants

Theme	Subthemes	From Participant(s)
1. Participant attributes	Biographical data	#1, #2, #3, #4, #5 #6, #7, #8, #9, #10
	Teaching (e.g., courses taught, teaching philosophy)	#2, #4, #5, #6, #7, #8, #9, #10
	Motivation to pursue academia	#2, #3, #4
	Value system	#3, #4
2. Institutional/ departmental culture and leadership	Institutional changes over the years	#4, #6
	Department attributes	#2, #3, #4, #5, #6
	Department chair leadership attributes	#2, #3, #4
	Nurturing/healthy departmental culture	#4, #5, #6
	Some departmental conflicts	#2, #10
	Department's commitment to good teaching	#6, #8
	Varied departmental views on educational technology	#1, #2, #3, #4, #5, #9, #10

Table 21. (Continued)

Theme	Subthemes	From Participant(s)
3. Professoriate in the research university	Work life attributes	#1, #3, #4, #5, #6, #7, #8
	Faculty attributes	#3, #5
	Conducting research is primary	#1, #2, #3, #4, #5 #6, #7, #8, #9, #10
	Teaching is secondary or less	#1, #4, #5, #6, #7, #10
	When to focus on teaching (after tenure or minimized research career)	#1, # 4, #7, #10
	Advice to junior faculty (don't focus on teaching related activities like educational technology)	#1, #4, #5, #7,
4. Promotion and tenure (P&T) guidelines/rew ard system at the research university	Reward system based on triumvirate university mission of research, service, and teaching	#3, #4, #6, #8
	Reward system values doing research most	#1, #2, #3, #4, #5, #6, #7, #8, #9, #10
	Faculty required to bring in set amount of external funding (e.g., 25% of salary, triple digits)	#2, #5, #9
	Lack of rewards when faculty bring in more than the set amount of funding	#5
	Minimum number of publications required	#2, #5, #6
	Great teaching is not rewarded (and perhaps even perceived to be negative)	#1, #2, #3, #10
	P&T requirements have shifted over the years	#2, #4
	Role of teaching evaluation in reward system (mostly minimal)	#2, #5, #7
	Strategies faculty formulate to meet promotion guidelines	#3
	Mismatch between faculty interests and P&T guidelines	#2
	Ideal performance evaluation system	#2
	Can receive tenure based on teaching as primary area	#5, #9
	Doing both research and teaching using educational technology are rewarded	#8

Table 21. (Continued)

Theme	Subthemes	From Participant(s)
4. Promotion and tenure (P&T) guidelines/ reward system at the research university (continued)	No reward for teaching using educational technology	#5
	Thoughts on post-tenure review	#1, #5, #7, #8
	Mentoring needed for junior faculty	#10
5. Educational technology	Types of educational technology used and not used	#1, #2, #3, #4, #5, #6, #7, #8, #9, #10
	Participant experience of teaching using educational technology	#2, #4, #5, #6, #7, #8, #9, #10
	Rationale for teaching using educational technology	#1, #2, #3, #4, #5 #6, #7, #8, #9, #10
	Benefits of teaching/learning using educational technology	#3, #4, #5, #6, #7, #8, #9,
	Motivation to teach using educational technology	#7
	Barriers to teaching using educational technology	#1, #2, #3, #4, #5 #6, #7, #8, #9, #10
	Potentials of educational technology	#1, #5
	Pedagogical issues of teaching using educational technology	#1, #2, #3, #5, #6, #7, #8, #9, #10
	Institutional/departmental support for educational technology	#1, #2, #3, #4, #5, #6, #7, #8, #9
	Participant educational technology skills	#1, #3, #4, #7, #10
	Expectations in design of educational technology course materials	#2, #10
	Likely adopters/non-adopters of educational technology for teaching	#3, #5
	Student evaluation of web-based courses	#5, #9
	Problems in teaching using PowerPoint slides	#5
	Copyright laws and teaching using educational technology	#9
	Classroom technology	#4, #10

Table 21. (Continued)

Theme	Subthemes	From Participant(s)
6. Distance education	Defining distance education	# 1
	Pressure to do distance education	#4, #5,
	Personal choice to do distance education	#1, #3
	Institutional/departmental support to do distance education	#2, #8
	Motivation/incentives to do distance education (e.g., financial, service)	#2, #3, #4, #5, #6
	No incentives/benefits for doing distance education	#1, #5
	Benefits of doing distance education	#4
	Student demand for courses/programs offered over distance	#3, #6, #8
	Degree programs offered over distance	#1, #6, #8
	Pedagogy of distance education	#8
	Concerns/fears of distance education	#3, #4
	Distance education fees fund support for faculty	#6
7. Student attributes	Demographics	#3, #6
	Lack of academic preparedness	#2, #3, #5, #10
	Lack of student passion about his/her field	#3
	Student readiness to learn using educational technology and their reactions towards it	#1, #2, #3, #9
	Student reactions to learning using educational technology	#3, #5, #7, #9
	Communication methods	#1, #3
	Other	#2, #6

Table 21. (Continued)

Theme	Categories	From Participant(s)
8. Academic capitalism	Faculty need to bring in external research funds (e.g., to support self, students, research programs)	#3, #4, #5, #6, #7, #8, #10
	Acceptance of the need to bring in funds	#1, #5, #9, #10
	Agencies that fund participants' research	#1, #2, #3, #4, #5, #6, #7, #8, #9, #10
	Pressure to bring in grants with larger indirect/overhead fees	#3, #4, #5, #6, #7
	Difficulties in getting grant awards	#1, #2, #4
	Participant research areas/projects	#1, #2, #3, #4, #5, #6, #7, #8, #9, #10
	Agencies that facilitate the process of obtaining grants	#3
	Rise of academic capitalism	#4
	Negative consequences of academic capitalism	#2, #7, #9
	Pressure to commodify education	#5, #7
9. Job satisfaction/ turnover intentions	Enjoys professoriate	#1, #2, #3, #5, #6, #8, #9, #10
	Personal choice to focus on teaching	#4
	Personal satisfaction from research	#1
	Personal satisfaction from teaching	#1, #2, #4, #10
	Personal satisfaction from research and teaching	#2, #3
	Personal satisfaction in starting a new program	#5
	Personal satisfaction from creativity in developing educational technology course materials	#5, #7, #9
	Personal satisfaction in teaching using educational technology	#1, #2, #3, #5, #7, #9
	Personal satisfaction from facilitating research and advancing participant's program	#4
	Personal satisfaction in grant writing	#5
	High job satisfaction	#1, #3, #4, #6, #9, #10
	Less than high job satisfaction	#2, #5
	Contributors to job satisfaction	#1, #2, #3, #5, #6, #8, #10

Table 21. (Continued)

Theme	Categories	From Participant(s)
9. Job satisfaction/ turnover intentions (continued)	Obstacles to job satisfaction	#5, #7, #9
	Do have/have had turnover intentions	#1, #2, #3, #4, #5, #6, #7, #10
	Do not have turnover intentions	#8, #9
	Contributors to turnover intentions	#1, #3, #4, #5, #7, #8, #9, #10
	Effort spent on turnover intentions	#1, #5
	Reasons for staying	#1, #2, #3, #6, #7
	Sources of conflict in work/life balance	#10
10. Implications for HRD	Training and development for faculty in entrepreneurship, educational technology/distance education (faculty development)	#2, #5, #7, #9
	Training and development for administrators regarding distance education	#5
	Organization development for entrepreneurship and educational technology/distance education	#2, #5
11. About the dissertation study	Understanding of dissertation study	#1, #4, #5
	Information about researcher (human instrument)	#5, #9
	Data collection	#4, #8, #10
	Ontological authenticity	#2, #3, #4, #7, #8, #9, #10
	Use of snowball technique	#5, #6
	End of interview exiting	#8, #10

The Participants

Carrying out this study was possible because of the 10 faculty members who volunteered to become study participants. I imagine many researchers, for one reason or another, experience difficulties in finding and recruiting participants and my experience was no different. Therefore, I am grateful to the 10 participants who chose to share a slice of their valuable time with me.

In this section, I will share what I learned about them as people—their attributes such as biographical data, courses they teach, teaching philosophy, motivation to pursue academia, or value system. The order in which I will introduce the participants will be chronological in terms of when they arrived at University A or University B. Up until this point, I have identified the participants in the sequence in which I interviewed them. The rationale behind the departure from that approach is to weave the participant introduction with the historical timelines of Universities A and B, whenever possible. Thus, the participants will be introduced according to the sequence depicted in Table 22 below.

Table 22. Study Participants and Sequence of Introduction

Sequence	Pseudonym	Arrival at University A or B
1	Jonathan Wilson	1967
2	Carl Andrews	1976
3	Peter Jones	1977
4	Michael Johnston	1977
5	Erica Baker	1985
6	Sheryl Caldwell	1995
7	Theresa Wells	1999
8	Larry Smith	2000
9	James Williams	2000
10	Lindsay Reeves	2001

As you will soon notice, the lengths of the participant introductions vary. While some participants expounded on their biographical and professional background during the interviews, some did not. I respected those who chose not to share more of their personal information and did not probe for depth. Hence, their narratives will be shorter.

Jonathan Wilson, 1967

Jonathan Wilson belongs to a department at University A that is the "granddaddy of range departments anywhere in the world in size, volume, and productivity" [Interview #4, card #155 of 175]. In fact, his affiliation with the department began in 1957, 11 years after the birth of the department, as an undergraduate student. Thus, his relationship with the department spans 50 years.

After receiving his undergraduate degree in 1961, Dr. Wilson went west for his master's degree; he earned it in 1963. He returned to University A in 1964 to start his doctoral studies. One summer of federal government work helped him to choose the academic career path:

I worked one summer with soil conservation service, federal, between my junior and senior years in undergraduate, which helped me to decide that I didn't want to work for the federal government. I thought I was going that way career wise but I enjoyed my summer and I said that's not my career path. So that's when I switched over and began to pursue academia. [Interview #4, cards #35-36 of 175]

I asked him the reason behind the change in career path and he responded as shown below:

The federal government is a top-down organization and very …. It's more where'd you spend your time and what records did you fill out than what did you actually do. I like the more entrepreneurial attitude of the academic environment in the university. They're not looking over your shoulder. They give you enough

rope to hang yourself or make a ladder and climb out. It's up to you. [Interview #4, cards #36-37 of 175]

Dr. Wilson earned his doctoral degree in January 1968 but began working with the agricultural experiment station associated with University A in 1967. Then, he was located in the northern part of the state but in 1970 moved to the campus of University A as he began a joint appointment with the university and the experiment station. He received tenure and was promoted to associate professor around 1975 and was promoted to full professor in 1979.

Because Dr. Wilson has been a part of University A either as a student or faculty member for 50 years, he has seen and experienced many institutional changes. He recalled his undergraduate years and the total cost to earn that degree: "I completed my undergraduate degree on less than $1000 a year. Tuition, fees, room, board, total expenses. I completed my four years on less than $4,000" [Interview #4, card #76 of 175]. We attempted to calculate the present day value of $4,000, and based on the brand new Ford 2-door coupe he purchased for $2,500 upon his graduation, which we roughly estimated it to be equivalent to $25,000 today, we concluded that the cost of education has definitely risen since his undergraduate years.

The professoriate at University A also appears to have changed over the years. "In the '60s, tenure was almost automatic. It was not a very high bar" [Interview #4, card #33 of 175]. Furthermore, the university funding available for faculty research seems to have diminished over the years:

My first 15 years with the System, my research was supported almost entirely by hard dollars through the system. By state dollars. It was about 1980 that we started looking out and saying "Oh we need to get grant funds." During the '70s we were beginning but very few of the faculty in our area were really in any measured way into grants. That began to develop during the '80s and has just continued. [Interview #4, card #16 of 175]

Dr. Wilson's priorities, too, have shifted over the years. While his primary focus may have been on obtaining external funds for research, today, his focus is on teaching and the service he provides to the department by taking on a large teaching load. This shift in priorities seems to have come from an experience of an automobile wreck, the injuries he sustained, and his subsequent recovery:

At one time I had in one year six PhDs and four master's students. Keeps you very busy. When I got out of this, I was in a wreck that laid me up and I was pretty well out. I didn't teach for a year. Then I came back. I was still not moving and I just got my ankle fused, it's been two years ago this month, and I'm back on my feet again. So I had a very slow period here but going into that I had grants, I had two postdocs, PhD and master's students. I got back on my feet literally and my grants had run out. The four proposals I had out were not funded and the postdoc periods had run out. I'd finished the master's and PhD and I was coming up on 60 years old and I said "do I want to try to start all this back up again?" And things weren't starting, I got much more involved, I've been president of my international professional society, picked up some more teaching in the

department, so much more on service roles than other things. I've been doing research, and I've had little, but I'm not going back on the treadmill. That's when I told the department back about two department heads, back about 2000, I said this is where I'm going to go. If it doesn't fit, let me know, I'll give you the position back and move on. So I've tried to give value back to the department in what I'm doing and I don't think there is anybody who's unhappy that I'm holding a position down.

Dr. Wilson's teaching load is comparatively heavy. For example, he was responsible for five different classes and groups of students in Fall 2006, and he uses the course management system (CMS) available at University A, Blackboard Vista, to help him manage the course load. His teaching philosophy and views on technology used for teaching are provided below:

I try to have justice in my classes tempered with mercy and I offer grace where needed. So, yep, you've got to have rules, there has to be justice but rules can also be administered, depending on the case, with mercy. And occasionally you can assist students and push them over where they didn't think they could make it. So, some don't need it, few do, so that's my teaching philosophy. … But if technology gets in the way of that, it's a hindrance. If it facilitates, it's there but it also sets the context for knowledge. [Interview #4, cards #171-172 of 175]

More of Dr. Wilson's story will be shared later in *The Findings*.

University A and University B in the 1960's

Here, I will pause from the participant introductions and add relevant information regarding the research sites during the 1960's, the period when Dr. Wilson professionally became associated with University A.

According to the information available at the website of the parent system of both universities, University A opened its doors in the 1870s as a land-grant institution. Until 1963, it was a segregated institution accepting only white male students (Paddon, 2007). However, in 1963 University A became integrated as blacks and women were admitted, although apparently with much reluctance.

Another change swept through University A in 1963: the designation of *College* in its name became *University* (Fernandez, 1988). Nationally in the 1960s, universities across the US were embroiled in student protests against the Vietnam War. Even so, the students at University A evidently did not engage in such demonstrations because the university president of that era forbade such activities (Fernandez, 1988).

The 1960s was still three decades before University B would be officially formed. The dental school that would become one of its health professions schools, however, was in existence in another city since 1905.

Carl Andrews, 1976

Carl Andrews is originally from the Midwest, received his undergraduate degree from one major public research university there, and his graduate degrees from another major public research university in the same state. He arrived at University A in 1976, as

an assistant professor, his first tenure-track faculty appointment. Today, Dr. Andrews is a tenured full professor.

Teaching both undergraduate and graduate statistics courses, Dr. Andrews belongs to a department which offers a master's program in statistics over the distance, completely online. One unique characteristic of Dr. Andrews' department is the commitment from the leadership on the infrastructural support for conducting distance education, removing many of the first-order barriers (Ertmer, 1999, 2005):

> You know our department is ... well it goes from the department head who's pushing this opportunity for us. We have a full professor who's also the associate dean for distance, I don't know, it's education or something like that. That associate dean, he's the one in charge of the graduate students, but he hired a full time person, who handles all the technical details. She's not a statistician but she's really great as far as making sure that the pen works, making sure the recording's okay and so I think that we're really lucky in our department. [Interview #8, card #17 of 74]

Furthermore, graduate students in the program serve as teaching assistants, provide technical assistance to the faculty who teach using educational technology, are available in the classroom when faculty are teaching, and perform all the necessary technical work before and after the class meetings. Thus, both junior and senior faculty appear to participate in teaching using educational technology. I asked Dr. Andrews if he would be teaching using educational technology without the support he currently

receives. His answer was "probably not" [Interview #8, card #16 of 74]. More will be discussed later on this point when the research questions are addressed.

Peter Jones, 1977

Peter Jones is originally from the northern part of the US, "a beautiful, beautiful, country" [Interview #6, card #11 of 90]. He received an undergraduate degree in engineering, from his home state, and went south for his graduate degrees in statistics. Dr. Jones arrived at University A in 1977, after having taught one year each at two different universities. Today, he is a tenured full professor as well as an administrator. Dr. Jones too recalled the many changes that have occurred at University A and the town in which it resides:

Oh, unbelievable changes. In the size, the attitude, the environment of this university plus the size and gains of sort of the outside interest in the town. The town was so small, the college town, when we came here in the '70s. It's unbelievably different. [Interview #6, card #14 of 90]

Furthermore, he shared his thoughts in the change in the political climate and cultural environment of the university:

Amazing improvement since when I started. Absolutely. … I won't get deep into politics but I'm a pretty liberal minded sort of person and it was very, very conservative when we first got here. Two, I think the ethnic diversity increased considerably. Still, it's nowhere near where it should be but I love that. Just the differences and cultures …. [Interview #6, card #84 of 90]

Dr. Jones teaches two graduate courses on statistical methods using educational technology. He reiterated the importance of the infrastructural support for teaching using educational technology available to him and other faculty members in his department:

> Well I think what really scares off a lot of faculty members is that they'd have to learn all the technology because we're busy to begin with, especially our department which is very, very research-orientated. So to get anybody other than a couple of us older people to do this, and I don't do much research anymore because of my administrative duties, to get any of the real research faculty to do it, they would never have done it without all the support. [Interview #6, card #26 of 90]

This point will be addressed further in *The Findings*, along with other emerged themes and subthemes.

Michael Johnston, 1977

Michael Johnston also arrived at University A in 1977. Originally from the Midwest, Dr. Johnston received his undergraduate degree from a large public research university in the Midwest and his graduate degrees from another large public research university, also in the Midwest. After a year of a postdoctoral experience, he started his first tenure-track position at University A in 1977. He has been a tenured full professor since 1990.

Dr. Johnston's use of educational technology for teaching includes a digital image library of vascular plants and associated web-based test drills. His foray into teaching using educational technology occurred as a byproduct of a locally funded

interdisciplinary research grant that subsequently led to funding by the state's higher

education coordinating board and then to funding by the National Science Foundation.

However, among the 10 faculty members who participated in my study, Dr. Johnston

appeared to be one of the most adversely affected by academic capitalism: his field,

systematic botany, is evidently fading away:

> This money mill thing, in biology, it's kind of a complicated story. But molecular
>
> biology basically has revolutionized the discipline and the federal government,
>
> the funding through the federal government, has really hunkered down on
>
> molecular biology. And botany is a non-molecular, for the most part, discipline.
>
> It deals with whole organisms you know. So it has suffered from that point of
>
> view. And those institutions that focus on getting money ... now old botanical
>
> gardens, Harvard, Duke, Berkeley, quality educational institutions that still have
>
> strong programs in botany, although with the exception of Wisconsin and a few
>
> others, they don't call it botany. The term botany and zoology, these are archaic
>
> terms. To be politically correct you have to call them something else. [Interview
>
> #7, cards #92-93 of 110]

Consequently, Dr. Johnston has not been mentoring graduate students, neither

master's nor doctoral:

> And I've refused to take students since 2000 and my administrators have not been
>
> happy with me for that refusal …. I hate to digress but our botany program just
>
> kind of disappeared. I'm kind of like the last surviving botanist, myself and my

colleague. I just feel like I can't bring a student in and actually prepare them as a botanist if there are no courses to take. [Interview #7, card #84]

I will return to Dr. Johnston's story later when the research questions are addressed in *The Findings*.

University B in 1977

Although two decades will pass before University B is officially formed, another future component, the medical school, opened its doors in 1977.

Erica Baker, 1985

Erica Baker is originally from the Pacific Coast. She received her undergraduate degree in psychology, through which she was able to design an interdisciplinary degree plan that focused on biology, psychology, and anthropology. Dr. Baker was motivated to pursue science as a result of doing undergraduate research in Europe:

I spent some time off in Europe doing undergraduate research, what would you say, supplementary kind of an experience, where I actually worked with a person who won a Nobel Prize later. So all of that was part of what motivated me as a woman to choose to go into science. [Interview #2, cards #20-21 of 152]

She did her doctoral work in ecology and behavioral biology in the North and postdoctoral work in the South. Dr. Baker arrived at University A in 1985 as an assistant professor, her first tenure-track position, as the first woman to be hired by her department. She is a tenured associate professor today and teaches in areas related to animal behavior.

Some of the courses Dr. Baker teaches are fully online and uses University A's course management system, Blackboard Vista. She designs her courses around three elements: "comprehension, application, and synthesis of information" [Interview #2, card #29 of 152].

Dr. Baker echoed the adverse aspect of academic capitalism noted by Dr. Johnston, the aspect related to the phenomenon favoring certain fields over others:

> Well the thing with zoology is that it's going cellular, molecular because that's where the money is. And so we actually have accepted, organized more biologists whom they got rid of and pushed over into our department. [Interview #2, card #138 of 152]

And this push of non-cellular biologists to Dr. Baker's department seems to be occurring because her department focuses on the whole animal rather than on the cellular level, a focus preferred by Dr. Baker:

> And that's a personal thing, too because as a student, I wanted to learn with my own eyes, and ears, and nose. I wanted to use binoculars and not microscopes. And that's a bias. And I find that I connect with students who also have that shared bias. [Interview #2, card #140 of 152]

Dr. Baker's story, too, will be provided more in detail when the research questions are addressed in *The Findings*.

Sheryl Caldwell, 1995

Sheryl Caldwell is originally from the South Central US and attended schools in the same region to obtain her undergraduate, master's, and doctoral degrees. She arrived

at University A in 1995 as an assistant professor, her first tenure-track position, while still completing her postdoctoral duties from another institution. Today, she is a tenured associate professor.

As a community ecologist, Dr. Caldwell travels across North America for data collection and teaches courses in animal ecology and fisheries management. She uses the Web to post her course materials, to aid her in course management, and to communicate with her students. Initially, she developed the web pages herself and used a website outside of a course management system (e.g.,. Blackboard Vista). Today, she uses Blackboard Vista (also referred to as WebCT, an older name for Blackboard Vista):

> My main mode is probably the WebCT. That's probably the most obvious one. But in the past, I've used websites that I simply made out of Microsoft files. This was probably about five or six years ago. I was just converting all my documents into HTML files to upload to a website so students could have access to things like my syllabus, schedules, and documents. The last two years was the first time I actually used WebCT, not only as a way to provide documents but also to organize things like grades and to communicate with the students. [Interview #3, cards #16-17 of 165]

Although her position at University A is her first faculty appointment, Dr. Caldwell previously has held other non-faculty positions. Her motivation to pursue academia included her love of learning:

> … probably one of the main reasons I actually came back and got my PhD and wanted to work at a university was I love learning. I am definitely a lifelong

learner …. I had 15 years between each of my degrees, just about, and so each

time I came back was because I was really attracted to learning. I was really

attracted to research as a way to learn. [Interview #3, cards #150 of 165]

Another motivation for pursuing academic included her interest in conducting

research and teaching:

I enjoyed being a researcher 10-15 years. I was basically a researcher but a

technologist when I worked in a hospital lab, but I enjoyed trying to figure out

what was wrong with a patient, helping the doctor make a diagnosis and make

that person well. Then after awhile I became just a technician running a machine

and I wasn't doing as much of the investigative component of that on my own so

that's when I went back to school the first time. The reason I went back to school

for my PhD – I had been through 10 years, 15 years of research and I said "You

know, I want to write my own research grants and I want to do my own things." I

always had a focus on what went on in a seminar or a classroom between

teachers and their students and between researchers and their students. To me,

that was always attractive. [Interview #3, cards #152-153 of 165]

And, as you will see later in *The Findings*, Dr. Caldwell echoes a common theme

found among the study participants—that the professoriate is a dream job, albeit a

difficult one:

Because I've had other jobs. I've had other jobs where I was totally in research,

totally worked in the lab, and didn't have that educational component, and I think

that really truly this is my dream job, although it's not easy. [Interview #3, card #159 of 165]

Theresa Wells, 1999

Theresa Wells was a military brat who "lived everywhere," although she was born in the region of the South Central US [Interview #5, card #2 of 158]. She fondly recalled her experiences of living in Japan. As a military brat myself, we shared our notes about living in the Far East during a similar period.

Dr. Wells received her undergraduate degree at University A and worked in non-faculty positions in another region of the US. She arrived at University B as an assistant professor, her first tenure-track position: (Reminder: University A and University B are located in the same city and belong to the same university system.)

I went to college at this institution as an undergraduate and then went off and worked for awhile and ended up by backdoor means, ended up in epidemiology and for a health department in the East Coast. [Interview #5, card #2 of 158]

Her career path as a public health epidemiologist was a departure from her undergraduate degree, fishery science. However, she loved the new field, received her graduate degrees in the discipline, and returned to the south central region to work for a state public health department: "And I loved it so I went and got a master's and a doctorate and then came back to this state and worked for the health department" [Interview #5, card #2 of 158].

Because both University A and University B are located in the same city, she chuckled about returning to the city where she had received her undergraduate degree.

Also, like Dr. Jones, she noted how the city has changed over the years, although from the perspective of someone who previously experienced the city as an undergraduate student:

> When I left here as an undergraduate, I said "that's it, Lord, did my time, I am so out of here" and to be back here, it's just funny. … When we moved back here, I was just astonished how 20 years later it is completely different. The wealth of the students just floors me. … We were doing well if one of us among our group of friends had a car. And to see BMWs and really nice vehicles and very luxurious apartment complexes, the culture is very, very different. … I think the student body was a lot smaller so you were more likely to know a good chunk of people. It really has exploded. It's not a bad thing, it's just a lot different than my experience. And this area wasn't a town. It really didn't exist. A few blocks off of campus, a town existed, and the older houses did. The mall and all of that were just fields so anything kind of past about where the mall is now was maybe a few scattered houses. So this area has become an actual town on its own and with very dramatic changes. Dramatic changes in that it's interesting to be here as faculty to see it from the other side because it's very different from what I imagined it was when I was here as a student. [Interview #5, cards #9-12 of 158]

The public health school of University B, to which Dr. Wells belongs, offers a master's degree to both residential and distance students. Therefore, Dr. Wells uses Blackboard Vista to teach a course that strictly meets online, for the distance cohorts, and to supplement a course that meets face-to-face, for the residential students.

Today, Dr. Wells is a tenured associate professor. More will be shared about Dr. Wells' experiences in *The Findings*.

<div align="center">*University B in 1999*</div>

University B was officially formed in 1999 as a health professions university. Its components in 1999 included the schools of dentistry, medicine, and public health.

<div align="center">*Larry Smith, 2000*</div>

Larry Smith is originally from the Southeast US. Having completed his bachelor's and master's degrees at a major research university in the Southeast, he completed his doctoral degree at a major research university in the Midwest. Dr. Smith arrived at University A in 2000 as an assistant professor, his first faculty appointment. Prior to his faculty appointment, he worked in various capacities that included educational outreach. Today, he is a tenured full professor in education.

Dr. Smith uses a variety of educational technologies to suit the different teaching and learning needs. After listing the different technologies he incorporates into his teaching, he stated:

> … There are different purposes for using the technologies. So what I'm trying to do to design my course around is an expanded version of Moore's transactional distance theory. I try to find ways to maximize learner-learner interactions, learner to technology, learner to instructor, and learner to content, so I really use a variety of educational technologies. [Interview #1, card #8 of 159]

Dr. Smith's department offers both a master's and a doctoral degree that are offered over the distance. He shared his department's views on the terminology *distance education*:

We try not to use the word distance education anymore. … It's kind of a passé term. I know that in Europe and around the rest of the world e-learning kind of is still the pretty hot terminology but those of us at least in this department we thought about it a lot and we try to use technology-assisted learning because the research is so overwhelming that it doesn't matter. In terms of learning outcomes it doesn't matter if you're face-to-face or you're at a distance, or whether you're synchronous or asynchronous. The learning outcomes, at least as we measure them in terms of grades and projects and stuff, there really isn't any difference. So because of that we try to move away and to say technology-assisted learning. And that's much broader. It just says how we teach. We tend to be very technology-rich in our teaching. [Interview #3, cards #16-18 of 159]

James Williams, 2000

James Williams, a "faculty brat" [Interview #10, card #4 of 110], was born in the Midwest US and lived in the Northeast and Midwest as his father's academic career took his family from one region to another. He attended a prestigious private institution in the Northeast for his undergraduate degree and returned to the Midwest for his graduate degrees, to the same university where his father is a faculty member:

I went back to the university where I essentially grew up, despite my best attempts not to, for graduate school. I wanted to go somewhere else but the

person that I really needed to work for was there. I was not so happy about going

back home, I wanted to go to California or someplace. [Interview #10, card #6 of

110]

Dr. Williams arrived at University A in 2000 as an assistant professor in physics,

his first faculty appointment, after completing a postdoctoral position at a federal

national laboratory for conducting basic research in particle physics. Although this

position is his first academic appointment, he worked during his graduate years as a

teaching assistant and enjoyed the experience. And, his mentors identified him early on

as an ideal candidate for the professoriate:

… I was identified early as being somebody who was going to be good at this.

When I walked into the door, they pegged me. … We had a class we had to take

for TA training. I walked in the door and they knew right away. I would always

be picked to do the demonstrations of how to teach. [Interview #10, card #10 of

110]

Dr. Williams uses a variety of educational technologies including Microsoft

PowerPoint, to generate lecture slides, and the assessment feature in Blackboard Vista

(or WebCT, as he refers to it below):

I have used a number of tools. The one I use the most is PowerPoint overhead

slides with all the cool tools in PowerPoint, you know, the videos, stuff flying in,

things moving, I use that in every lecture. … I use WebCT extensively as a

homework and quiz delivery and collection system, thousands and thousands of

quizzes per semester, well, hundreds of thousands of quizzes administered per

semester. Very high statistics. [Interview #10, card #13 of 110]

Dr. Williams uses the Blackboard/WebCT quiz delivery feature to provide students with

numerous drill and practice opportunities to help them learn to solve physics

calculations.

Dr. Williams is a tenured associate professor today and more will be said about

his experiences in *The Findings*.

Lindsay Reeves, 2001

Lindsay Reeves is originally from the Pacific Northwest. She received her

undergraduate degree in nursing and a professional degree in law, both from the Pacific

Northwest region. She practiced health and medical law in the Pacific Northwest first

and in the Northeast next. She began her doctoral degree in public health in the

Northeast and completed it after she arrived at University B as an assistant professor in

public health. That was in 2001; today, Dr. Reeves is a tenured associate professor.

Although her current position at University B is her first tenure-track faculty

appointment, because of her background, she was involved in teaching early on, even as

a doctoral student:

I taught immediately upon entering the PhD program. They needed someone to

teach health law and since that was my specialty they put me in that mode and I

continued to teach health law and risk management for health managers and also

some of the courses in medical outcomes. [Interview #9, card #7 of 102]

Dr. Reeves uses a variety of educational technologies that includes Microsoft PowerPoint slides, videos, and websites. Because she teaches both residential students and distance cohorts enrolled in the school's master's program in public health, she also relies on the videoconferencing technology:

In a classroom that's equipped to televise to distant sites, I have both a live classroom in the immediate classroom and in most years I've had a distance site linked out ... at the same time. [Interview #9, card #11 of 102]

Some courses she teaches are delivered mostly online:

I've put my human resource management class online and made it available to students as a web-based course. We meet the first night live and during that time I show how to access all the important sites and move from page to page so that they don't have to find it on their own. [Interview #9, card #15 of 102]

Dr. Reeves' experiences, too, will be revisited in *The Findings*.

Summary of the Participants and the Research Sites

This section introduced the attributes of the 10 study participants: their biographical data such as the regions where they were raised and attended schools; professional data such as when they began their tenure track positions; and experiential views such as their motivation to pursue the professoriate, thoughts on infrastructural support for teaching using educational technology, and perspectives on the adverse effects of academic capitalism.

This section also introduced a few of the major changes that occurred at the research sites beginning from the 1960s, the decade when the study participant with the

longest tenure arrived at University A. For University A, its transformation in 1963 from a white male only college to that of an integrated university—by race and gender—seems to be noteworthy. For University B, its birth in 1999 that brought together the different health professions components under one university appears to be significant.

Now, I will address the findings, delivered via the three research questions. This section follows below.

<center>The Findings</center>

The purpose of this interpretive critical inquiry was threefold: (a) to understand the experiences of faculty at public research universities who teach using educational technology and their perceptions of how the demands of two apparently conflicting requirements of teaching using educational technology and obtaining externally funded research grants affect their job satisfaction as professors; (b) based on the findings, to offer suggestions and recommendations for organizational change that will serve to alleviate the conflicts faculty may experience; and (c) to identify the implications for human resource development (HRD) in public research universities in terms of addressing academic capitalism and teaching using educational technology.

The three research questions that guided the study were: (a) What is the experience of faculty members who teach using educational technology at a public research university? (b) How is the experience affecting them as more demands are placed on faculty to obtain external research funds? and (c) How is the experience affecting their job satisfaction? In this section, each research question will be addressed

using the themes and subthemes that emerged from the interview data; Table 23 below

provides an overview of the findings. The details follow.

Table 23. Overview of the Findings

Research Question	*Findings*
#1. What is the experience of faculty members who teach using educational technology at a public research university?	1) Benefits, rationale, or motivation for teaching using educational technology 2) Barriers to teaching using educational technology 3) Institutional/departmental support for teaching using educational technology
#2. How is the experience affecting them as more demands are placed on faculty to obtain external research funds?	1) The professoriate in the research university 2) Promotion and tenure (P&T) guidelines/reward system at the research university 3) The effects of academic capitalism 4) The conflicts over the utilities of teaching using educational technologies
#3. How is the experience affecting their job satisfaction?	1) Job satisfaction 2) Turnover intentions

Research Question 1. What is the experience of faculty members who teach using

educational technology at a public research university?

The Association for Educational Communications and Technology (AECT), a professional organization for the field of educational technology, defines educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski, 2006, p. 10). Distance education, or distance learning, is "a form of education in which some means, electronic or otherwise, is used to connect people with instructors and/or resources that can help them acquire knowledge and skills" (Roblyer, 2006, p. G-3). In this study, distance education is viewed as a form of learning that makes use of educational technology.

Educational technology can be a wide range of tools that facilitate teaching and learning. The study participants' use of educational technology supported this perspective. Table 24 below lists each participant and the educational technology they use to teach.

Table 24. Study Participants and the Educational Technology They Use

Interview #	Pseudonym	Technology, Products, and Components Used	Goal/Motivation for Use
1	Larry Smith	Technology: telephone, Web, wikis, videoconferencing Products: Adobe Flash, Apple iPod, Blackboard Vista (WebCT), Microsoft PowerPoint, Saba Centra Components: animations, asynchronous discussion boards, audio, expert systems, PowerPoint slides with narration, synchronous online chats, video	"I try to find ways to maximize learner-learner interactions, learner to technology, learner to instructor, and learner to content" [card # 8 of 159].
2	Erica Baker	Technology: CD-ROM, Web Products: Adobe Dreamweaver, Blackboard Vista (WebCT), Microsoft PowerPoint, Photoshop, Microsoft Word Components: audio, asynchronous discussion board, online assignment submission, online quizzes, still images, synchronous chats, video	"I use it as a platform fully integrated with my objectives of the course and so with this particular course we're looking at, the objectives are in terms of comprehension, application, and synthesis of information" [card #29 of 152]

.

Table 24. (Continued)

Interview #	Pseudonym	Technology, Products, and Components Used	Goal/Motivation for Use
3	Sheryl Caldwell	Technology: Web Products: Blackboard Vista (WebCT), Saba Centra, TechSmith Camtasia Components: Access to syllabus, schedules, documents, online quizzes, recorded classroom activities	"I was just converting all my documents into HTML files to upload to a website so students could have access to things like my syllabus, schedules, and documents, and things like that. The last two years was the first time I actually used WebCT, not only as a way to provide documents but also to organize things like grades and to communicate with the students" [cards #16-17 of 165].
4	Jonathan Wilson	Technology: Class notes services, classroom technology (e.g., whiteboard) Web Products: Blackboard Vista (WebCT), Microsoft PowerPoint, Sympodium Components: online grade book, online quiz	"I use WebCT for delivery of course materials, posting of handouts from PowerPoints delivered in class, posting of additional readings, posting of website links for students to go to. I post the syllabus, other handouts and notices, so it saves tremendously in the paper budget and the copy charges" [card #56 of 175].

Table 24. (Continued)

Interview #	Pseudonym	Technology, Products, and Components Used	Goal/Motivation for Use
5	Theresa Wells	Technology: Classroom technology, videoconferencing, Web Products: Blackboard Vista (WebCT), Microsoft PowerPoint, TechSmith Camtasia Components: Asynchronous discussion, case studies	"I really enjoy the concepts of how to exchange information using these technologies because it is a completely different environment. To me, it's a little like scrapbooking. It's putting together different resources and making the learning more of an experience" [card #107 of 158].
6	Peter Jones	Technology: Web Products: Adobe Acrobat, Adobe Flash, Saba Centra, TechSmith Camtasia Components: Audio, class notes in PDF format, video	"… the students are writing so furiously to try to keep up with me when I used to just write on the overhead projector. But I don't think they had much time to think, to really listen to what I was saying. Now, number one, using the PDF file idea, they don't have to write down a whole lot. … So they can spend more of their time listening. One. Two, by capturing both the audio and what I've written on slides, they can go back to their room and play that thing over again and so things that are unclear, some of the small nuances that you would miss just because it's going too fast, they could play them back" [cards #28-29 of 90].

Table 24. (Continued)

Interview #	Pseudonym	Technology, Products, and Components Used	Goal/Motivation for Use
7	Michael Johnston	Technology: Web Components: Online database of more than 4000 images such as flowering plants, quizzes for self-assessment	"It is image-based. It is hugely image-based and in this discipline the 1000 words scenario holds really well. … And having those available just gives you so much leeway in terms of building pages or referring students to stuff. If you look at the pages that we have for families, which you saw briefly there, they're just loaded with images and references to images" [cards #45-46 of 110].
8	Carl Andrews	Technology: Web Products: Adobe Acrobat, Adobe Flash, Saba Centra, TechSmith Camtasia Components: Asynchronous discussion, audio, class notes in PDF format, video	"We're looking at one of our important tasks is to have a master of statistics, master's degree in statistics, for distance students and we feel that there is a big opportunity there because there are a lot of people working in corporations who handle data but they do not have the technical background that a degree would impart to them" [card #21 of 74].

Table 24. (Continued)

Interview #	Pseudonym	Technology, Products, and Components Used	Goal/Motivation for Use
9	Lindsay Reeves	Technology: Logitech webcam, microphone, videoconferencing, Web Products: Blackboard Vista (WebCT), Microsoft PowerPoint, Microsoft SharePoint, TechSmith Camtasia Components: Asynchronous discussion, online grade book, online quizzes	"… our school has made a commitment to offering its core courses and required courses in a web-based form for students because part of our overall mission is to serve rural and underserved regions of this state. We're not just based here. .... So we've had cohorts in different places" [cards #32-33 of 102].
10	James Williams	Technology: Classroom technology, Web Products: Adobe Acrobat, Blackboard Vista (WebCT), Microsoft PowerPoint, Sympodium, Turnitin Components: Assignment delivery and submission, online quizzes,	"To really create something where they know what your point was and where they understood what you meant often can be really low brow stuff …" [card #46 of 110]. … "Students get it and they love it. … They really get it" [card #58 of 110].

Table 25 on the following page provides the descriptions of the various educational technology products and components referred to by the participants. Thus, the study participants appear to make use of a variety of educational technologies in their teaching that range in complexity from simple technology, such as the whiteboard, to something more complex, such as a computer expert system, with different pedagogical goals or motivation for teaching using educational technology.

Three common subthemes emerged related to this research question of understanding the faculty experience in teaching using educational technology. The three subthemes were: (a) benefits, rationale, or motivation, (b) barriers, and (c) institutional/departmental support. They are described below.

Benefits, Rationale, or Motivation

The experience of teaching using educational technology appeared to be personally rewarding for the participants. Some participants stated they *loved* the experience. Here is Dr. Well's response: "Now, I love the web thing. Me personally, it suits me to a T. It really suits me" [Interview #5, card #31 of 158]. Dr. Jones shared a similar response: "I love it. Absolutely" [Interview #6, card #32 of 90].

Table 25. Descriptions of the Educational Technology Products and Components Referred to by Study Participants

Technology/Product/Component	Description
Adobe® Dreamweaver®	Developed by Adobe Systems Incorporated, this is a software tool used to design, develop, and maintain web pages, websites, and web applications. Visit http://www.adobe.com/education/products/dreamweaver/ for more information.
Adobe® Flash®	Developed by Adobe Systems Incorporated, this is a software tool used to develop interactive instructional and informational content for websites. Visit http://www.adobe.com/education/products/flash/ for more information.
Adobe® Photoshop®	Developed by Adobe Systems Incorporated, this is a software tool for manipulating digital images, whether 2- or 3-dimensional and whether photographs or illustrated graphic. Visit http://www.adobe.com/products/photoshop/family/?promoid=BPDEK for more information.
Apple iPod	Developed by Apple Incorporated, this is a mobile handheld device for storing and playing back audio only, or audio, images, and video. Visit http://www.apple.com/ipod/whichipod/ for more information.
Blackboard Vista	Developed by Blackboard Incorporated, this is a software tool for delivering online course materials as well as carrying out online instruction. Its integrated tools include course calendar, assessment development and delivery, asynchronous and synchronous discussion, and assignment submission. Visit http://www.blackboard.com/products/Academic_Suite/Learning_System/vista.htm for more information.
Microsoft Windows SharePoint	Developed by Microsoft Corporation, this is a software tool that allows collaboration between people through built-in tools such as announcements, surveys, discussions, and group editing on documents. Visit http://www.microsoft.com/sharepoint/default.mspx for more information.

Table 25. (continued)

Technology/Product/Component	Description
Saba Centra Live	Developed by Saba, Saba Centra Live is a software tool that enables carrying out online class sessions in real time by connecting up to 500 people at the same time. An instructor can use of audio, video, graphics and other forms of data to teach and engage students in the learning activities by using various built-in tools. For more information, visit http://www.saba.com/products/centra/details.htm#virtual_classes.
Sympodium™	Developed by SMART Technologies, Sympodium™ is a device that looks like a computer monitor and used during presentations to incorporate handwritten notes and other markings by using a special pen and writing on the device. Visit http://www2.smarttech.com/st/en-US/Products/Interactive+Pen+Displays/ for more information.
TechSmith Camtasia	Developed by TechSmith, Camtasia is a software tool that records a series of screen images that display on a computer monitor. Visit http://www.techsmith.com/camtasia.asp for more information.
Turnitin	Developed by iParadigms, Turnitin is a web-based tool for detecting plagiarism in narrative products such as papers. Visit http://www.turnitin.com/static/plagiarism.html for more information.
Videoconferencing	Videoconferencing is meetings or gatherings between people separated in distance carried out with the help of telecommunications technology. While participants may be located in different places, the technology allows the participants to hear and see each other. (Roblyer, 2006; see page G-10 for details).
Webcam	Webcam is a camera used with a computer or some other hardware to record images. Visit http://en.wikipedia.org/wiki/Webcam for more details.
Wikis	Wiki is a software tool used to collaboratively develop a series of documents that are linked to each other. Visit http://en.wikipedia.org/wiki/Wiki for more information.

Dr. Baker also stated that she loves the experience. She elaborated why:

I actually love it. I've really enjoyed the distance ed class and the distance ed

section of my mixed mode class, which is an undergrad class. And the reason is

because I feel like I have better communication with the students in the chat

room. There's more one-on-one, there's more aha, and again those aha moments

are the intangible moments that we never really measure. But for me as a teacher,

it is my own gut measurement as to whether I'm doing a good job or not.

[Interview #2, card #66 of 152]

The reasons behind the personally rewarding experience seemed to vary but

appeared to be because the participants realized one or more benefits as a result of

teaching using educational technology. These benefits, in turn, seemed to serve as

rationale or motivation. For some, the reason seemed to be related to the creativity in

teaching using educational technology as shared by Dr. Johnston:

Well, it's been interesting and exhilarating from an academic point of view. …

but from a teaching point of view I think the interest is in the development and

the kind of creative manipulation of materials for a faculty member. The interest

is not necessarily in the response you're going to get from either the

administration or the student. [Interview #7, card #50 of 110]

Dr. Reeves made a similar point:

… I'm really pleased with what I've been able to create, sort of an artistic

pleasure. I look at that page and sometimes think "gee this is really neat." This

sitting up there on the Web, this is my course. [Interview #9, card #92 of 102]

For Dr. Wells, creativity as well as learning something new were reasons for the personally rewarding experience in teaching using educational technology. In fact, the creativity and challenge of teaching in a new environment served to rejuvenate her interest in the course she had been teaching for years:

> … the creativity and learning new technology. Academics are generally inquisitive people who are always sort of in a learning mode. That's what drew us into this the first place so it's very refreshing to be challenged with teaching in a different environment. I was getting a little burned out. … I was pretty much ready to say "I've had it, I've been doing this for six or seven years … ." … So this has rejuvenated my interest in teaching that course, by taking it into a whole different direction. [Interview #5, cards #117-118 of 158]

For other participants, the experience of teaching using educational technology provided positive outcomes because they were able to extend their efforts using technology, as in Dr. Wilson's case:

> The backend - it's time saving. I was handling these five groups - I meet with the undergrad team once a week, I had the writing seminar class which has lots of papers to grade every week, I had the undergrad lab and writing every week, I had the undergrad lab I supervise, I had the 150 student lecture that I did last fall. Technology allowed me to do that and make it manageable. I had 270 students that I had contact with last fall in these 5 different classes and groups. So, yeah, technology is a way to extend my efforts …. [Interview #4, card #90 of 175]

Another benefit from teaching using educational technology appeared to be pedagogical in that it could facilitate teaching and learning. For example, Dr. Smith mentioned how educational technology could enhance learning: "Yeah, it does enhance learning. Well, the research supports it and we certainly believe it, if done correctly" [Interview #1, card #30 of 159]. Dr. Baker shared how she was able to provide opportunities for students to take responsibility in their learning through the online chat tool:

But that actually is another benefit – that there are times when I turn the leadership of the chat over to one student and so there's a little bit of that leadership development that's actually beneficial because, again, they're taking responsibility for their learning. [Interview #2, card # 81 of 152]

Dr. Jones from the statistics department, whose lectures were recorded for access by local and distance students, saw technology as a way for students to pay attention to the content rather than on the act of taking notes:

… all we were asking them to be were stenographers. You know in stat a lot of it is formulas, even if I was doing examples, it takes a lot to write all the stuff down. And so now, we're able to let them listen. And really propose questions. … Before they were writing so far back, like if you were doing a board, they were usually half a board behind you. [Interview #6, card #30 of 90]

Still another benefit from teaching using educational technology appeared to be the ability to deliver learning to distance students, students who otherwise would not

have had access to higher education. Here is Dr. Smith's perspective on the benefit of educational technology for serving distance education:

> At a distance, having grown up on a farm and worked for an extension, I think we get to reach people we otherwise would never reach. So for students who are truly at a distance, that's really good. [Interview #1, card #86 of 159]

A similar sentiment was shared by Dr. Caldwell: "For me, I'm predisposed to do it because I know we have a lot of students off campus who would like to be able to access courses. I didn't realize this" [Interview #3, card #51 of 165].

For Dr. Wells, the option to deliver a course over the Web was beneficial both to her *and* her students:

> … because it goes out to the distance cohorts. That was part of the rationale for me doing it. Because we have to catch the distance students and we have to teach at night. And I hate teaching at night. It's the worst time. They're tired. These are often students who work full time and are doing the program in the evening and they are just tired. They're burned out, I'm tired, and I figured that course would be the best one to start with online because they could do it on their own time and at their own rate. [Interview #5, card #73 of 158]

Along the line of Dr. Wells' comments above, flexibility and convenience—both to the participants and students—afforded by educational technology was another common subtheme of benefits. Dr. Wilson spoke of the flexibility he gained by conducting online quizzes:

Frustrations of using class time for quizzes, all the paper to deal with. With large

classes you've got to get scans, the hassle of having the bubble sheets, get them

over there [to the testing center to process the bubble sheets]. The amount of

copies you had to run and then the ease of use of that [online quiz system]. You

can build your stuff, you can change things, a student misses one, you can have

the open closed dates, you can use selective availability. It has a lot of nice

features which in a class with 150 students, those are really nice. It allows me to

have some flexibility to deal with things. You can do the other way but it's just a

lot easier. [Interview #4, card #65 of 175]

Dr. Johnston, too, shared his views on the flexibility provided by educational

technology. His perspectives, though, were from the flexibility in content access and

self-assessment provided to the students:

I guess the third element involves material available for the student to access at

anytime, which the technology provides that we didn't have before. And that

involved in addition to taking the material that we present to the students also

working out little test drills that they could do anytime that they wanted to,

computer-based. [Interview #7, card #11 of 110]

The last common subtheme of benefits from teaching using educational

technology was it can promote lifelong learning that facilitated the self-perceived need

to keep up with the students. Here are Dr. Caldwell's thoughts: "Just learning new things.

Actually, it keeps you up with the students. Well, I never like to feel like I'm behind on

anything" [Interview #3, card #95 of 165]. Dr. Wells also stressed that she felt the need

to keep up with the current generation of students who seems to possess a short attention

span due to the media-rich environment with which they are accustomed:

> So there is something unsettling about using the technology. On the one hand,
> you're keeping up with, I think, how students receive information in their lives.
> They're very media oriented and they're very visual. The attention span issue is
> huge to me. I think you can see the effects of such a media-oriented youth. The
> kids that are coming through now started with computers. They've always had a
> lot of television, a lot of visuals, and a lot of graphics so if you just stand in front
> of them and talk, they don't know what to do with you. So I use the technology
> because I have to keep up with them. [Interview #5, card #18 of 158]

Overall, the participants appeared to be pleased with the outcomes of teaching

using educational technology and stated various benefits that perhaps served as rationale

or motivation to teach using educational technology. To apply the terms of first-

order/second-order barriers, where first-order barriers are *extrinsic* obstacles that occur

external to the teacher, such as an inadequate infrastructure or technical support, and

second-order barriers are *intrinsic* obstacles that occur as a result of an innate

characteristic such as the teacher's belief system (Ertmer, 1999, 2005), the rationale or

motivation too can be described as either first-order or second-order. Most rationale or

motivation appeared to be second-order, that is, they were intrinsic to the participants:

personal satisfaction from creativity and challenge in teaching using educational

technology, belief that it enhances teaching and learning, and a vehicle for faculty's

lifelong learning. First-order rationale or motivation included a way to extend faculty

efforts, reach distance students, and provide flexibility and convenience to local and distance students.

However, the journey to realizing the positive end results did not appear to be a smooth road. They spoke of many barriers that challenged them. The next section addresses the barriers that emerged as another common subtheme.

Barriers

The participants shared four categories of barriers they experienced: (a) time constraints, (b) steep learning curves, (c) technical problems, and (d) pedagogical challenges. These barriers are discussed below.

Time constraints. This barrier was the most mentioned barrier among the study participants. For Dr. Smith, the barrier regarding time was twofold. One, spending time on educational technology was at the expense of focusing on activities that provided greater rewards to professors at research universities: "The barrier is that it takes time away from the other things" [Interview #1, card #71 of 159]. Two, teaching using educational technology consumes more time than teaching traditionally without technology: "And most of us who do it will say that it takes a lot more time to prepare and monitor and to run these courses at a distance than as a face-to-face" [Interview #1, card #21 of 159]. Dr. Baker echoed this time consuming characteristic of teaching using educational technology: "... it was so incredibly time consuming for me to try to learn all of that stuff on my own …" [Interview #2, card #52 of 152]. She elaborated on this point:

Sheer time of prepping the materials. Getting familiar with the programs and then

that they're updated so you feel like the Red Queen, running, running, running

always trying to learn a new tool and that's a barrier because my frustration level

gets to the point where I feel like my time is being wasted on the tools rather than

on the content and delivery. [Interview #2, card #72 of 152]

The time burden was also an issue for Dr. Wilson. However, he did note that

time efficiencies were gained later.

Technology takes a lot of time. Instructor time. It's expensive. There are some

payoffs in it once you get it done, it has some efficiencies. But the upfront cost

and the learning threshold is a significant cost and keeps a lot of our faculty out

of it. [Interview #4, card #86 of 175]

However, being members of a department that provided full technical support for

teaching using educational technology, Dr. Jones did not experience any time constraints

and Dr. Andrews experienced time constraints but not related to learning or operating

the technology. Here is Dr. Jones' response when I asked him if he experienced any

barriers or challenges: "I would think just learning the technology, if you had to. Like I

said we're in the ideal situation where the graduate students are doing all the work. I

don't have to learn the technology" [Interview #6, card #33 of 90].

Dr. Andrews did experience time constraints but they were brought on by the

increased student enrollment as a result of his department's participation in distance

education: "It's more, having more students, it's more time evaluating their work,

grading, and so forth. That increases the time burden" [Interview #8, card #28 of 74]. Dr.

Wells too found this increase in workload to be true for her:

It's a lot more work to put together all those resources, to follow up on students,

to read emails, to keep on top of it, as opposed to a course you go in and you

teach three hours and you're done. [Interview #5, card #108 of 158]

To address the time constraints, Dr. Reeves dedicated her weekends to

developing her web-based course materials:

… the first year I did it, it just took an enormous amount of time. And that

amount of time I basically carved out my Saturdays and came in and videotaped

while no one else was around. [Interview #9, card #17 of 102]

Finally, Dr. Williams, too, shared his thoughts regarding the time-consuming

nature of teaching using educational technology. As shown below in an interview

excerpt, the rich educational technology components textbook publishers readily make

available to professors did not seem to help either:

Dr. Williams: So there are all these great textbooks that you can buy and they say

here's our lectures and here are videos but if you could have used their stuff. You

have to use their lectures but I don't want to use their lectures, I want to put their

stuff into my lecture but they don't use PowerPoint, they use something else. And

they say here are these really cool graphics and I'm going to bring in the graphics

but they made graphics so that they work in Microsoft Windows Explorer but I

don't want to use, I don't want to stop my lecture and pull up Microsoft Explorer

and then show a video and then go back to my PowerPoint. I want the thing to

show up in my PowerPoint and I want to put arrows in to point at what I think is

important. I want to start it and stop it and restart it and move it backwards and

forwards and they're not many people who know how to do that and I've had to

learn how to do that.

Researcher: And that part is very time consuming.

Dr. Williams: VERY time consuming. The investment to learn how to do that is

ENORMOUS. [Interview #10, cards #52-53 of 110; capitalized words represent

the emphases the participant made during the interview.]

Learning curves. This barrier referred to the steep learning curves that

accompanied using educational technology to teach. Perhaps this barrier is another

perspective of the time constraint barrier for the amount of time one needs to invest to

overcome a steep learning curve could be significant. Here is Dr. Wilson's experience

regarding the steep learning curve of a tool:

Learning how to run the software. I've got to learn by next fall how to operate

Vista 4, use it in peer groups and manage groups and all of that. That's going to

take quite a few hours of my time this summer. [Interview #4, card #87 of 175]

Technical problems. Adding to the barriers of time constraints and steep learning

curves were issues related to the instability, unpredictability, or unreliability of

technology. Dr. Caldwell stated matter-of-factly that "… you've got to be prepared for

the unknown. It's not a perfect world, especially if you're doing live classroom

technology" [Interview #3, card #92 of 165]. Dr. Wells had similar experiences: "… and

sometimes the technology just crashes. For example, just flat out WebCT goes down and just doesn't work" [Interview #5, card #114 of 158].

Another perspective of the barrier related to technical problems is that the participants often were sought out by their students to help resolve technical glitches. Dr. Wells shared her thoughts on this point: "… or students don't understand their computers are older so they have connectivity problems and you spend a lot of time just troubleshooting their access to the course" [Interview #5, card #114 of 158]. Sometimes, the need for the participants to serve as technical support persons seemed to occur at the least opportune time, as shared by Dr. Reeves:

> At times there is a conflict. Especially at the beginning of a semester. If I happened to have something due on a research grant or a proposal that could go out and yet I'm responding to distressed students who seemed to can't get in or are having trouble because they've a dial-up modem and they suddenly realized they need a broadband. That has to take priority and I've got to push other things aside. [Interview #9, card #85 of 102]

The issue of slower bandwidth was a recurring problem for a handful of Dr. Reeves' students because they were not able to view the videos she had incorporated into her web-based course materials. She devised a workaround solution: "so what we end up doing is making DVDs or CDs of the videos for them and send them out via mail" [Interview #9, card #57 of 102].

Pedagogical challenges. The participants also mentioned the pedagogical challenges they had to address in order to teach using educational technology. Some

challenges pertained to the difficulty in converting learning activities that occurred in the face-to-face environment. Others pertained to communicating or connecting with the students. For example, Dr. Jones shared a potential constraint in conducting two activities for his distance students in the master's statistics program:

But we require them to do a master's project so they get a writing experience. And that's going to be a little trickier doing at a distance because a lot of times with writing you really need a sort of a face-to-face discussion. And we'll see how that works out. That's one point. Two, we require them to have two semesters of consulting experience. So this help desk or consulting center that I run, I do a lot of hands-on with it too. … Plus we have a weekly staff meeting where everybody who's enrolled get together and talk about all the problems that are giving them difficulties. And how we will do that at a distance, provide the same consulting experience for these master's students, we haven't quite figured out how we're going to do that. [Interview #6, cards 76-77 of 90]

Dr. Wells shared her challenges in connecting with the students:

And then you have the creating a classroom environment with people that you never see. So connecting with students is more challenging. When you're lecturing to them you can see when they're not getting it. But when you've set it up online you really have to work hard. I included a lot of a little self-study quizzes that did not cost them anything if they took them but I could see if it took them 10 attempts to get a 100%. Or, I'll do surveys in between. There's a lot more work than just if I'm lecturing in front of them. I can stop and ask questions and

know right away this is not going where I thought it was going. So that can be a little frustrating. [Interview #5, card 115 of 158]

Sometimes, pedagogical concerns surfaced as a result of student responses to learning using educational technology, such as in Dr. Reeves' case, whose students enrolled in a web-based course compared the online experience with that of a face-to-face experience:

So I don't know how they respond to my videos but I think overall the expressions and opinions I've gotten is that "gee, having taken your health law course, I really miss the discussions about those interesting issues and I wish we could have that in a web-based course." [Interview #9, card #25 of 102]

In summary, the common barriers shared by the participants were time constraints, steep learning curves, technical problems, and various pedagogical challenges. Furthermore, these barriers appeared to be interrelated in that attending to the steep learning curves and technical problems exacerbated the time constraint burden. This time constraint burden, however, appeared to be minimized when a participant's department, such as Dr. Jones', provided human resources (Warschauer, 2002) for addressing technical issues as part of its infrastructure for teaching using educational technology. Also, although the participants typically spoke about the steep curve in learning a new educational technology product, the pedagogical challenges they shared signaled another learning curve: learning the pedagogy of teaching using educational technology.

Thus, the issue of the learning curves seemed to denote two needs—a need to become facile in using the tools and a need to develop an expertise in the pedagogy of teaching using the tools. These needs could be addressed through human resource development (HRD), some of which were provided at University A as faculty development workshops. The next section discusses the final subtheme related to this research question—the institutional and/or departmental support.

Institutional/Departmental Support

The institutional support for educational technology at University A included an office (OET) that provided physical resources (e.g., hardware, software) and human resources (e.g., training and technical support) (Warschauer, 2002) for teaching using educational technology. These resources were also available to University B. The physical resources included Blackboard Vista (WebCT) and other software and equipment for faculty use. Human resources included a range of faculty development workshops on products such as Blackboard Vista and TechSmith Camtasia as well as workshops on various how-to topics such as how to incorporate video into web pages, how to select a media player, and how to configure the browser to support multimedia applications. The participants who have used the services of that department rated it favorably as exemplified by this statement by Dr. Baker: "They were wonderful in helping me with the steep learning curve as far as getting into the first levels of WebCT and as far as all of the upgrades that have come along with WebCT" [Interview #2, card #74 of 152].

However, Dr. Smith thought University A's institutional support for carrying out distance education was lacking: "The university has no concerted effort to do distance education. There is no centralized, purposeful way that the university wants to do distance education" [Interview #1, card #82 of 159]. When I pointed out that there might be an office for distance education at University A, he was surprised. He searched for the office at the university's website during our interview and indeed found it. He read the description of the office available at the website but seemed to think that the description was less than sincere. Here is an excerpt of our conversation:

Dr. Smith: I didn't even know this existed. Isn't it interesting?

Researcher: Would you still feel that it's more of a lip service?

Dr. Smith: Sure! What are they doing for me? Right? What are they doing for me? Tell me one thing they are doing for me. Nothing.

[Interview #1, cards #83-84 of 159].

Even though Dr. Smith found University A's office of distance education suspect, he too was happy with the services provided by the other office, OET.

The one group of people would be WebCT [referring to the department that supports Blackboard Vista] …. No, we need them. We absolutely need them. They actually work with faculty members. [Interview #1, card #85 of 159]

Some participants received support at the college level and found this support valuable. Dr. Baker shared her experience of using her college's support for instructional design:

Like this semester, we're going through a process of streamlining the materials so

I needed the outside help, I needed the professional help, the services from the

distance education office in my college. And so they are going through and

basically looking at my materials. One of the complaints I've had from the

students was that there was too much and that it needed to be streamlined. And

so they're going through and looking at it in terms of comparison with other

materials, other courses, streamlining it, making sure that there's kind of a one-

step, 1, 2, 3, 4 this is how you get started …. [Interview #2, card #5 of 152]

Dr. Caldwell also found the design support available at the same college helpful:

In fact, having had someone to help, quote, unquote, and I love her to death, help

me to design a web course – she got it up and going and she makes it happen

[Interview #3, card #88 of 165].

Sometimes, the support seemed to be in knowledge sharing that also appeared to

serve as social resource (Warschauer, 2002), such as in Dr. Wells' case:

The assistant dean here is very into the technology for distance learning so he's a

great resource. Yeah, he's really good. He tends to test out a bunch of new

software and he'll come by and give me the links and say "okay, go try this, go

try this." [Interview #5, card #95 of 158]

One noteworthy situation was from Dr. Jones' and Dr. Andrews' department, the

one that provides a complete support for teaching using educational technology through

assistance from graduate students, full-time staff, and associate dean for distance

education. In fact, the support provided seemed to represent three of the four necessary

resources in Warschauer's (2002) technology for social inclusion: physical (hardware and software), human (technical support), and social (supportive departmental culture). An impetus behind the full support appears to be administrators very knowledgeable about delivering distance education:

Our current department head started in March of 2005. He came to us from a university in Australia and had been teaching distance learning courses through the MBA program there. So he had a vast experience in doing this. Number one. And number two, one of our faculty members has had a very strong interest in distance learning for a number of years. And matter of fact I think most people on this campus would say he knows more about the technology of distance learning than anybody else by far. [Interview #6, cards #7 of 90].

Other driving forces appeared to be a perceived demand for distance education in statistics and the department's commitment to teaching. Dr. Andrews shared his thoughts on the demand for a distance-based master's program in statistics:

Big demand from industry, two sources: Industry, many people who go to the industry - they either have a math degree or a computer science degree. There's not enough statisticians working in this industry, or government, or even the medical research facilities that there's a big demand for someone who can analyze the data. So these people, by being the most quantitative people generally in the group, they end up with the job. They can run the computer programs. And these people would like to learn much more about statistics because they can do a better analysis. They don't want to give up their jobs,

though, and they may live in California, or Japan, or China, or any place and want to get a master's degree. So that was the demand. That was one. The second demand, potentially, is for high school math teachers who are teaching AP stat. Many of them are again mathematics teachers, very little training in statistics, but they're sort of given the job because no one else is qualified to do it but really would like to understand a much greater depth of what they're teaching to the AP students. So that's another market that we're hoping that we can capture.

[Interview #6, cards #5-6 of 90]

Distance education appears to be an effect of academic capitalism and this point will be discussed further under *Research Question 2*.

I asked Dr. Jones what prompted his department to be committed to teaching since his department, ranked in the top 15 nationally and "pushing towards top 10" [Interview #6, card #85 of 90] is also "very very strong research-orientated" [card #26 of 90]. The following excerpt is our resulting conversation:

Researcher: So what motivates your department to really spend a lot of effort on teaching, do you think?

Dr. Jones: We just have a commitment to good teaching. We always have. One demonstration of that is the enormous number of our faculty members who have won university and college level teaching awards. There has always been a commitment to teaching from the top down. So when new faculty members come in, new assistant profs, we've hired a lot of new assistant profs because we're part of our previous president's growth program, they're told we expect high quality

teaching. What we do is their teaching load is only two courses for the first two years of their appointment.

Researcher: Entire year?

Dr. Jones: Yeah, usually one a semester. But occasionally we'll give them two in a semester and actually give them another semester off. And for the first two years, it's the only course. There's no new development. They only have to develop one course. And generally it's a course that we've had already very much developed so there are tons of material for them. So their only responsibility, basically, is to deliver that product to the students so they don't have to spend a lot of time preparing notes, exercises, they have to of course prepare the exams new. But we give them a lot of support. We emphasize the teaching part. Because we all know if you want to stay at this place you've got to pump out research and get grant money. So we want high quality teaching while they're doing this other stuff. So luckily, we're big enough and have good people in here for the teaching side.

Other examples of the full support for teaching using educational technology available at the department included the human resources: besides the associate dean for distance education and full-time staff, the department also hires graduate assistants who provide support:

Matter of fact, the way we do it is the student, new incoming student, takes this course because it is taken by all first year students, whether master's or PhD. What we do then is to train these students a couple weeks before the semester

starts. Since they actually are taking my class, if I have a problem with a

technology during the lecture, and it doesn't happen very often, every once in a

while something goes wrong, they're right there to fix it. [Interview #6, card#23

of 90]

Thus, a benefit of the graduate student support was that the technology seemed to

be transparent to the participants:

… the nice thing is our department has graduate students so that I just have to

walk into the classroom and teach and they'll come in and have everything set up.

And then at the end of the class they will take care of the Camtasia recording and

the Centra recording. [Interview #8, card #14 of 74]

Furthermore, the support seemed to have allowed the participants to focus on their

teaching rather than on the technology: "So my responsibility is the content of the course

and the actual teaching" [Interview #8, card #15 of 74]. In addition, a distinguished

professor also teaches a distance course:

… matter of fact, he teaches one of the DL courses. He's like one of the top ten

statisticians in the whole world and yet he teaches a course and students just love

it. He only teaches like every other year because of his research demands but

when he does teach it, I can put it into an auditorium of 200 probably. [Interview

#6, card #53 of 90]

A contrasting case appeared to be Drs. Wells and Reeves' college. Both Drs.

Wells and Reeves teach using educational technology to address their college's mission

of providing public health education to the remote and underserved regions of the state.

Therefore they teach using the videoconferencing technology as well as over the Web.

Besides attending to the mission, another reason the faculty at the college may

teach using educational technology seemed to be to respond to a movement in their field

to offer the master of public health (MPH) degree over the Web: "We have an MPH and

there are a variety of universities that now offer completely online MPHs" [Interview #5,

card #32 of 158]. Thus, the administrators appeared to have placed an expectation on the

faculty to convert the core courses into an online format: "So the first step towards an

online degree was to get all the core courses online. … I think they want within two

years to have all of them, all the core courses, online" [Interview #5, cards #64-65 of

158]. This apparent response to a movement in their field also seems to be an effect of

academic capitalism: the use of distance education as a means to address the perception

of a demand. This point will be discussed further in *Research Question 2*.

The excerpt below seems to illustrate a case of a push to embrace distance

education by administrators inexperienced in carrying out distance education:

Dr. Wells: But they did that without ... this university and many of the colleges

give an incentive to faculty like a payment of $3000 - $5000 to develop an online

course out of their onsite course. There was no incentive at all here. There was

nothing. There were no resources, there was no salary incentive and the only

incentive for me to do this was I didn't want to teach at night and I was curious

about this technology. So not surprisingly other faculty haven't really jumped on.

Unless they're motivated themselves, it's a lot of work to expect of people. … So

there is no way they are going to meet the 2-year timeline and have it all by

basically the end of next year …. This school unfortunately made this decision

without any practical resources so now they're sort of playing catch-up. And we

realize that it's not as simple ... I think there were administrators who thought ...

one thing they thought was well you can just record all your onsite ones and just

put them on the Web. And so I've gone back to multiple meetings and said "that's

the poorest use of both resources." That's like the worst you could do to students.

Because it's like videoconferencing but even worse because you have no

interactions and plus you usually have poor quality of the recording. And having

gotten into the literature of distance delivery, I've learned that's just a horrible,

horrible way to try to teach. So I've gone back to them and said "there's a quality

issue and I'm going to be embarrassed for us as a school if that's the default, if

people just record their lecture and throw it up. It's a different environment and

faculty need to understand that. They're going to need some training and they're

going to need to do some re-thinking of their materials because a voice-over

PowerPoint is not the way to go every single time. And for some it may get

worse, but mostly it's not the environment where they're going to learn. You're

going to drive students nuts doing that." So they've at least stopped saying ...

Researcher: Oh, have they?

Dr. Wells: Yeah, yeah, it's taken some education because they were originally

thinking "well, we could grow all these students because we can just give them

an online class." No, it doesn't work that way. It's not automated so that you can

put 100 students on. I think they had a vision that it was a thing, a product, that

you just put out there and it sort of goes along by itself and takes care of itself.

No, it's still class requiring faculty time, you can't just have a bunch more

distance cohorts and expect one person to now have a class of 100. First of all,

you need to cap it. I don't know how you do more than 20 meaningfully.

Probably 15's better at a graduate level. So you can't have a 60-person class.

You'd be doing nothing but reading emails all day. So I think I've gotten them

backed up to realizing there are a lot of limitations and it's not a magic answer to

growth in the school. And they're going to have to convince faculty that it's worth

their time, especially tenured faculty. Why would they put the effort in when

there's no ... we're not rewarded for it and there's no incentive. Why go the

trouble of having to completely re-do a course that maybe you've already got

going comfortably? So I think I'm making progress. Yeah. [Interview #5, cards

#80-87 of 158]

Dr. Wells' excerpt above seems to illustrate two points: (a) a possible major

difference in the outcome goals of teaching using educational technology between

faculty and administrators and (b) the practice of faculty to carry-out self-directed

learning in at least the pedagogy of teaching using educational technology. In a previous

section, Dr. Wells' motivation behind teaching using educational technology was shared:

(a) personal curiosity in teaching in a different modality and the resulting satisfaction

gained from the creativity and challenge of teaching in that modality and (b) a flexible

and convenient option for reaching her distance students. In contrast, the administrators'

motivation behind the push to offer an online master of public health (MPH) program appeared to be capitalistic: (a) to be competitive with other public health schools that offer online MPH programs and (b) to increase student enrollment. With such dissimilar motivations, the outcome goals sought in teaching using educational technology would indeed be different between the faculty and administrators and problematic for faculty who require resources and support that may seem unnecessary to administrators. This point will be revisited in *Research Question 2* as a source of conflict between the different stakeholders in research universities.

Another point that surfaced in Dr. Wells' excerpt above was her practice of carrying out self-directed learning about teaching using educational technology (e.g., "And having gotten into the literature of distance delivery, I've learned that's just a horrible, horrible way to try to teach" [Interview #5, card #83 of 158]). Furthermore, because of her self-directed learning, she seemed to understand the need for faculty development (i.e., HRD) in the pedagogy of teaching at a distance: "It's a different environment and faculty need to understand that. They're going to need some training and they're going to need to do some re-thinking of their materials because a voice-over PowerPoint is not the way to go every single time" [Interview #5, card #84 of 158]. Thus, the gap to be bridged appeared to be a lack of similar knowledge in the administrators: "Yeah, yeah, it's taken some education because they were originally thinking 'well, we could grow all these students because we can just give them an online class'" [Interview #5, cards #84-85 of 158].

Until the administrators come to understand the motivation for faculty to become engaged in teaching using educational technology, develop their knowledge base about the pedagogy of teaching using educational technology, and help create a facilitating infrastructure such as Warschauer's (2002) physical, digital, human, and social resources, the differences in the outcome goals between the faculty and administrators would appear to be a barrier in the successful implementation of teaching using educational technology. The seeming need for administrator development will be discussed under *Chapter V: Conclusions, Implications, and Recommendations.*

Other participants who did not have access to strong departmental support also appeared to wish for it, as suggested by Dr. Wilson:

I developed some courses back years ago on overheads and with 35 mm slides and I've never converted all of that material over to PowerPoint and the new technology. So I still have a quite bit of pretty good stuff. I've scanned a lot of slides and moved them over to PowerPoint and digital images but a lot of my stuff that I had on overheads I've just kind of left it and gone on. … It would have been nice if we had funds and support to sit down and do a lot of that but we don't. We have one technical software support person for the 15 faculty in the department with a student worker, so basically you go from having a secretarial type support for every 2-3 faculty to 1 for 16 or 17. [Interview #4, cards #82-83 of 175]

Another support the participants indicated would be helpful was the support for

funding. Here are Dr. Reeve's thoughts:

… I think that departments or programs that expect web-based courses need to

make that financial investment for the faculty member. To get them big enough

computers, huge enough hard drive because the files are huge. I had to get a

backup hard drive that sits on my desk because Camtasia will quickly use up all

of my hard drive space. I personally, with salary savings, purchased the camera

and the mic. … Now for the aspiring professors, somebody who hasn't managed

or doesn't have the mechanism of salary savings or the extra funds to purchase,

they're going to need support from within their department because it's not cheap.

The camera's 60 and the microphone's 60 as well. An extra hard drive is 300,

400. Certainly a big enough computer. It'll run you another 300, 400 in addition

to what you need in terms of the overall price. So it's an investment. [Interview

#9, cards #95 and 97 of 102]

Similarly, Dr. Johnston shared his views on the need for funding support to

maintain his vast online database of plant images:

Well, what's happened is that the systems that I kind of demoed for you are

running mainly because of the willingness of the people from that center to keep

them up. Occasionally the servers will go down, there will be like a power

outage. And I'll have to kind of nudge them over there. I would tell the person

that I've worked with over there, "look it'd be nice if you re-established this

system." Then they'll send a student in there to get them setup. I don't know what

they do. So it would be nice if there was funding to make it so that I don't have to rely on their good auspices, you know, to do this. And I kicked around various notions of funding but at this stage of the game, I've kind of decided that it's just not worth the time and the energy to pursue it. [Interview #7, cards #94-95 of 110]

Dr. Smith agreed with the need for funding but added that finding the support was not difficult from his experience:

I've never had problems finding money. Nor have I seen anybody that's really had problems. If you had a kookie idea you may not be able to get someone to bank roll but we're not talking about needing lots of money to do anything. I need to shoot, edit, and post a Flash video. How much do you really need for that? What do you really need? You need a camera? Well we'll get you a camera. Oh you want to buy one on your own? Someone will come up with the money. Then you buy it. [Interview #1, card #66 of 159]

Based on the participants' responses, the experience of teaching using educational technology seemed to yield an overall positive end result. Creativity, pedagogical tools, access to higher education for remote students, flexibility, and lifelong learning were benefits that appeared to serve as rationales and motivation to teach using educational technology. However, the participants did experience obstacles such as time constraints, steep learning curves, technical problems, and various pedagogical challenges. Support available to the participants varied. Those who seemed

least burdened by teaching using educational technology appeared to be those with the most support.

In interpreting the participant responses, four points surfaced. First, faculty and administrators each may have fundamentally different outcome goals for engaging in teaching using educational technology, especially in distance education. While faculty may seek creativity, improved pedagogy, improved access to higher education, flexibility, and lifelong learning, administrators may seek capital growth through increased student enrollment. This fundamental difference may contribute to conflicts in the utilities of teaching using educational technology, and this point will be addressed as a finding under *Research Question 2.*

Second, faculty may require two sets of expertise development: (a) skill development in educational technology products such as Blackboard Vista and (b) knowledge development in the pedagogy of teaching using educational technology. Furthermore, self-directed or self-paced learning may be a helpful approach for faculty because their tight schedule may impede them from participating in scheduled workshops that occur on designated dates and times.

Third, administrators may also require knowledge development, chiefly, in understanding the factors that motivate faculty in teaching using educational technology and the pedagogy for teaching using educational technology. Without such knowledge, administrators seemed to develop unrealistic expectations such as shared by Dr. Wells:

 Yeah, yeah, it's taken some education because they were originally thinking

 "well, we could grow all these students because we can just give them an online

class." No, it doesn't work that way. It's not automated so that you can put 100 students on. I think they had a vision that it was a thing, a product, that you just put out there and it sort of goes along by itself and takes care of itself. [Interview #5, cards #84-85 of 158]

Fourth, the above three points are areas of concern for HRD. With the metaphors of organizational problem solver and change agent (Watkins, 2001), the field of HRD can attend to the issue of mismatched outcome goals between faculty and administrators and with further inquiry, perhaps can arrive at theories and models that appropriately address these issues. Similarly, with the metaphor of human capital developer (Watkins, 2001), HRD can address the need for faculty and administrator knowledge and expertise development in the multiple facets of teaching using educational technology. HRD's possible role in addressing these issues will be discussed further in *Chapter V: Conclusions, Implications, and Recommendations.*

The second research question—How is the experience affecting them as more demands are placed on faculty to obtain external research funds?—addressed the effects of academic capitalism on the experience of teaching using educational technology. This question is explored next.

Research Question 2. How is the experience affecting them as more demands are placed on faculty to obtain external research funds?

Academic capitalism is a worldwide phenomenon where institutions of higher education engage in enterprising and marketable activities for the purpose of generating funds for the institutions through their research capacities and also by commodifying

education (Bok, 2003; Brint, 2005; Deem, 2001; Etzkowitz, 2004; Etzkowitz et al.,

2000; Geiger, 2004; Häyrinen-Alestalo & Peltola, 2006; Slaughter & Leslie, 1997;

Slaughter & Rhoades, 2004, 2005). The pressures of academic capitalism appeared to be

present at University A and University B, based on the participant responses that

identified conducting research—especially, funded research—as the most important duty

as a faculty member. Furthermore, because teaching is considered secondary to research,

or tertiary to research and service, efforts spent on teaching, which includes teaching

using educational technology, tended not to be rewarded, or if rewarded, rewarded less.

Thus, the participants shared a work life marred by juggling conflicting demands. Here

is Dr. Baker's experience:

> There is definitely a conflict because to write a competitive grant proposal, I
>
> have to totally immerse myself in it at least a month, and during that time, I have
>
> to put a low priority to responding to my students during the time that I put into
>
> the course. Or, I end up doing it between courses and then I don't do any course
>
> prep time. And so yeah, that's one of the very dissatisfying aspects. [Interview
>
> #2, card #110 of 152]

> Dr. Wells' experience too depicts a work life characterized by constant juggling:
>
> It's the juggling. If I could just do research, or if I just teach, it's the constant
>
> juggling and the multitasking and then the administrative burden on top of that
>
> because we do teaching, we do research, and we do service and that's what we're
>
> evaluated on and it really is a constant juggling of those three and it requires a
>
> level of multitasking that really can be exhausting because what we do is so

detailed. Putting a paper together, manuscript for publication, you really need to

be focused. Running analyses, you need to be focused. And it's very difficult to

juggle all; none of it is easy. [Interview #5, card #135 of 158]

Four themes emerged relevant to the second research question regarding the

effects of academic capitalism on the faculty experience of teaching using educational

technology. This section explores the four themes: (a) the professoriate in the research

university, (b) promotion and tenure (P&T) guidelines/reward system at the research

university, (c) the effects of academic capitalism, and (d) the conflicts over the utilities

of teaching using educational technologies.

The Professoriate in the Research University

The study participants described common experiences as faculty at a research

university, whether at University A or University B. The common experiences pertained

to the work life attributes, the primary importance placed on conducting research, and

the secondary or tertiary nature of teaching. Based on these experiences, the participants

shared ideas on when a faculty member should focus on teaching and imparted advice to

junior faculty, the assistant professors.

Work life attributes. The participants described research universities as work

places characterized by significant independence and autonomy, although the faculty

carry a heavy work load. The criteria for advancement appeared to be clear. For example,

both Dr. Wells and Dr. Smith described professors as *independent contractors*. Here is

what Dr. Wells said: "The way academics work, we're all a bunch of independent

contractors and we could really do what we do anywhere" [Interview #5, card #120 of

158]. Similarly, Dr. Smith said: "You're an independent contractor when you're a faculty member" [Interview #1, card #74 of 159].

Autonomy seems to accompany this independence, as shared by Dr. Smith: "I think it's just an amazing thing that it actually works at an institution like this university because faculty members are just autonomous units who nobody has any idea what people do" [Interview #1, card #58 of 159]. Dr. Wilson also commented about the autonomous faculty work life:

> I mean nobody checks "what have you done?" Once here, they say "what you got to bring in?" And you have a lot of direction into your job description and how you fit particularly. If you're in the system a while, you're able to. You help plan departments and curriculums and courses and carve a niche and do your thing. [Interview #4, card #38 of 175]

The work load for the participants appeared to be heavy, as they were expected to conduct research, teach, and provide service. As shared previously, participants noted engaging in constant juggling and multitasking and working on activities that require great attention to detail. Dr. Wells elaborated on her thoughts on the constant juggling brought on by the work load:

> My complaint always is none of our jobs is easy. We're doing research that requires a great deal of background and thought and creativity and staying on top of things, you can't let the publications in your field go by, you have to be reading and staying up. Same with teaching. You're in front of people, you have,

even online, you have a product that you want to have at a level that you're not

embarrassed about, there's a lot of juggling. [Interview #5, cards 135-136 of 158]

A potential danger for faculty members appeared to be misguided time

management. As a result, they may expend their efforts on less rewarding activities such

as teaching, as shared by Dr. Caldwell:

Like I said, if you're not a good manager, then you end up managing too much. I

tend to do this, for the convenience of the students as opposed to making it

convenient for you to get all of your work done, and so that's where I think you

have to really sit down and think about how you're going to structure your week,

your day, in terms of access to you personally, when you're not available. I think

that's really important. And I'm slowly learning that, slowly learning how to do

that. But when a student gets into trouble I tend to immediately want to work

with them. [Interview #3, card #94 of 165]

Thus, autonomy seems to be a distinct and appreciated characteristic of the

professoriate. However, with criteria for advancement so clearly delineated and favoring

faculty conducting research over teaching, the attribute of autonomy seems to be

conditional.

Primary importance placed on conducting research. When I asked how

important it was for the faculty members in their departments to be conducting research,

all 10 participants concurred that conducting research was very important. Responses

ranged from a phrase, "very important," from Drs. Baker, Andrews, and Reeves

[Interview #2, card #82 of 152; Interview #8, card #44 of 74; Interview #9, card #60 of

102] to sentences that noted the importance of conducting research even for the tenured

professors. Dr. Wilson stated "Everybody. Even old guys need to be doing some"

[Interview #4, card #128 of 175] and Dr. Andrews noted "the expectation is that all

levels will continue to engage in research" [Interview #8, card #46 of 74].

However, conducting research appeared to be of the utmost importance to junior

faculty such as assistant professors on the tenure track. Dr. Andrews pointed out "It's

probably most important for assistant professors because they have to get tenure. That's

going to be the case in every department in the university" [Interview #8, card #45 of

74]. Dr. Johnston's experience as a junior faculty during the 1980s supported this

thought, although money apparently was not the primary motive back then. Rather, the

motivation appeared to be a form of a "prestige maximizer" as described by Slaughter

and Leslie (1997, p. 17): "Since most faculty teach, and many faculty perform public

service, but fewer win competitive research funds from government or industry, research

is the activity that differentiates among and within universities."

> Well as a new faculty member certainly the need for me to obtain research funds
>
> was made evident by my superiors. In those days and we're talking early '80s the
>
> notion that funding kind of gave you the stamp of approval of your peers was
>
> significant because with NSF you have review panels and you were competing
>
> against your colleagues and the money per se was not that big of a deal. It was
>
> getting a competitive research grant and at that time you know the teaching, from
>
> my point of view, I freely admit it, did not receive the focus creatively and the
>
> time and energy I invested to get the research off the ground. Mainly as my

survival as an academic required that I get the research off the ground, get some funding, graduate students. Simple as that. [Interview #7, cards #78-81 of 110]

Although the motive may not have been financial during the 1980s, it definitely appeared to be so today. Here are Dr. Smith's thoughts on this issue:

But the most important thing we do is, and everybody would agree, the most important thing we do, the thing that is valued most, is research. Funded research, I'll even qualify that. Funded research would be the most important. There are lots of research we can do that is free but the university is probably not as interested in that. They want to get their cut, they want to get their indirect costs. [Interview #1, card #103 of 159]

With research, rather funded research, considered to be primary, teaching, then, appeared to be secondary, as noted above by Dr. Johnston's statement that teaching did not receive as much of his creativity and energy as that of conducting research. Figure 4 on the following page diagrammatically depicts the importance of funded research, the secondary or tertiary nature of teaching and service, and the subservient roles of teaching and service to funded research.

Figure 4. Primary Importance of Funded Research and Secondary or Tertiary Importance of Teaching and Service

Funded Research

Research Universities

Teaching
(subservient to
funded research)

Service
(subservient to
funded research)
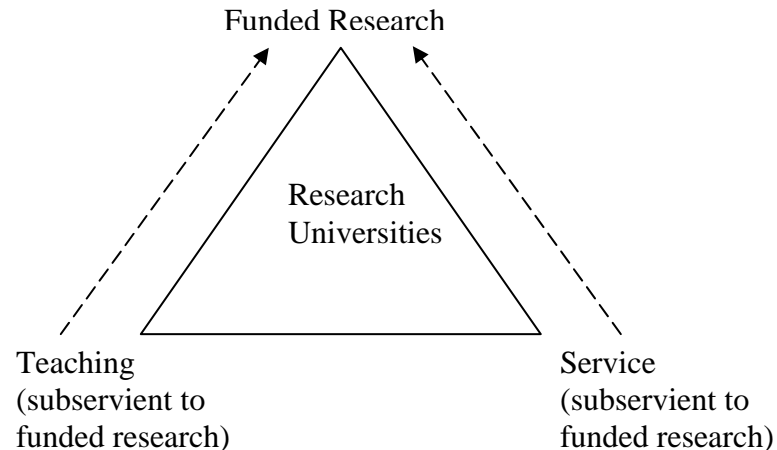
The next section describes the apparent secondary nature of teaching at the participants'

research universities.

Secondary nature of teaching. The participants viewed teaching to be secondary

or sometimes tertiary following service, as stated by Dr. Jones: "Service, probably

service being second, and then teaching third, I would think" [Interview #6, card #38 of

90]. They also mentioned the lack of reward for teaching. Dr. Wells shared: "And then

on the teaching side, there's really no reward for teaching. We haven't had anybody go

up here for tenure on teaching" [Interview #5, #43 of 158]. Dr. Johnston added to the

view of teaching as a secondary focus:

And the spinoff basically was the teaching and that's the bottom line. There has

never been any funding, at least to my knowledge, focused on teaching. It's often

the case teaching is more or less the backburner thing. People are interested in

doing it because people have to teach but it just kind of gets secondary funding and secondary focus. [Interview #7, card #19 of 110]

Furthermore, Dr. Williams shared his thoughts that those who teach well may be seen as focusing on the wrong activity:

And if you teach too well, you were here for your research. Boy, think about how much better you'd be doing with your research if you weren't screwing around so much with your teaching. Do you really love this stuff, are you really doing as much as you could to be making the great discovery? What's going on here? [Interview #10, card #64 of 110]

Perhaps because teaching is not rewarded, it is an activity that receives as little energy as possible, as mentioned earlier by Dr. Johnston from his experience as a junior faculty and here by Dr. Williams:

I mean most people just ... when they think about their teaching they're thinking about how do I put the minimum time and energy and to not be on anybody's radar screen. They enjoy it, they take it seriously, but it's not really what they're supposed to be doing so it's not what they're going to do. [Interview #10, card #108 of 110]

And to those faculty who want to focus on teaching, the advice may be that perhaps they should consider leaving the research university. Dr. Smith shared his thoughts on this point:

Go to a community college or to other universities that are not as research focused as ours. Go somewhere else. Every job description we've had, every job

description that comes out for faculty position at this university, has a statement

that says something like "development of an externally-funded research project is

a requirement of this job." So you can hope and wish and pray that wasn't it once

you got here and you're a failure at it but that's still the expectation of the job. If

you don't like it, go somewhere else. There are plenty of jobs, jobs that pay well.

[Interview #1, card #114 of 159]

This advice appeared to be significant to the current doctoral students whose career plans

may include joining the professoriate at research universities.

The findings from *Research Question 1* included the rationales (i.e., personal

satisfaction in the creativity, flexibility, and lifelong learning of teaching using

educational) that served as motivations for the participants to engage in teaching using

educational technology. Based on the findings of *Research Question 2* that depict the

utmost importance of conducting funded research, I pause to wonder how strong the

personal satisfactions they experienced must have been for them to engage in teaching

using educational technology when the criteria for advancement at research universities

clearly appeared to place teaching at a tier lower than conducting funded research.

When to focus on teaching. Thus, with teaching apparently viewed to be

secondary to research or tertiary to research and service, the participants noted when

faculty at research universities would typically focus on teaching: after receiving tenure

and being promoted to associate professor. Dr. Smith offered his views on this point:

I'd say that's something you wait until you're already promoted and tenured to

deal with just because it consumes so much time and the university has no way of

categorizing those efforts and no way of rewarding the faculty member at all. So

it's really interesting. I think you're going to hear this over and over and over

again. [Interview #1, card #41 of 159]

However, four of my study participants who focus on teaching are long-time *full*

professors: Dr. Wilson, Dr. Jones, Dr. Johnston, and Dr. Andrews. In fact, Dr. Johnston

made the following statement:

I can afford to do this stuff because I'm old and I'm not, you know, I'm a full

professor. I have some latitude that I didn't have when I was 35 and associate

prof. But for the younger people, they don't have that luxury. Certainly I didn't

before I was full professor. [Interview #7, card #56 of 110]

Furthermore, I asked Dr. Wilson, the faculty member who chose to focus on

teaching after recovering from a car accident and realizing his research program needed

to be restarted, and who subsequently informed his department chair his intentions were

to focus on teaching, the following question:

Researcher: So do you think you can say that to your department head because

you're tenured or because you're a full professor? Obviously an assistant

professor couldn't say that to a department head.

Dr. Wilson: Nope.

Researcher: Would an associate professor be able to say that?

Dr. Wilson: I wouldn't recommend it.

Therefore, although a faculty member could start to focus on teaching once

tenured and promoted to associate professor, perhaps those who aspire to become full

professors may not be motivated to focus on teaching until they reach a full

professorship. This possibility of faculty delaying their focus on teaching raises a point

concerning *who* is teaching the students of a research university such as University A.

Based on the institutional records of University A, it is one of the top ten in size in the

US. Furthermore, the Fall 2007 enrollment profile indicated an undergraduate student

population that exceeded 30,000. The Fall 2006 records—the most current data

available—indicated 3,875 total number of faculty members at University A; the faculty

profile is shown below in Figure 5. It is interesting to note that the number (n=1,929) of

teaching assistants and other faculty—presumably non-tenure track faculty—is roughly

half of the faculty workforce and suggests perhaps they are the ones who can focus on

teaching while tenured faculty and those on tenure-track (n=1,946) must focus on

conducting funded research. This point is revisited again in *Chapter V: Conclusions,*

Implications, and Recommendations, when this study's implications for students are

discussed.

Figure 5. Faculty Profile at University A
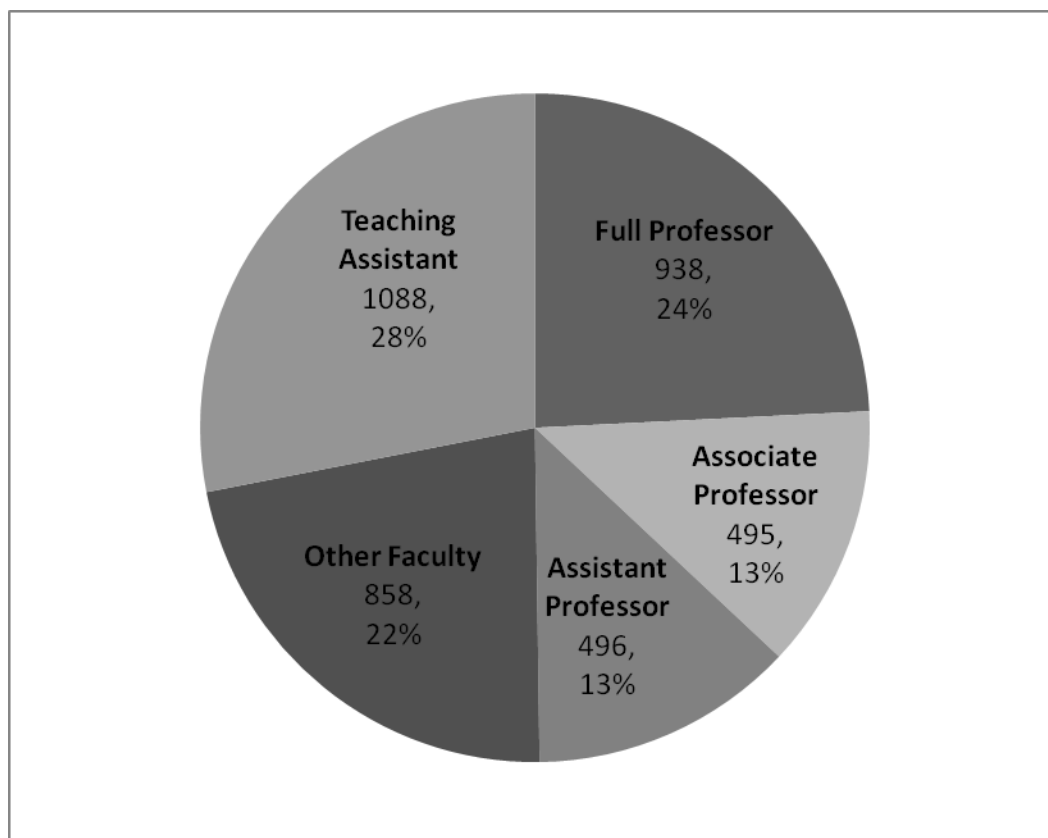
Advice to junior faculty. Because teaching is secondary or tertiary in importance, some participants cautioned junior faculty from becoming too involved in teaching, especially teaching using educational technology that requires much investment in time. Dr. Smith shared his advice:

> I would caution any junior faculty member to restrict any teaching …. Teach as little as humanly possible. And certainly don't teach in a manner that consumes additional time like shooting and editing videos and doing stuff like that. Just grab your notes and go teach. Be pleasant and polite. I think that's pretty good advice. [Interview #1, card #44 of 159]

Dr. Wells also shared her views on junior faculty and teaching:

The challenge with junior faculty is it takes so much work to develop a course

and my experience has been that until you've taught it at least three times, it's just

a lot of work because you tend to be developing it the first year. You're usually

just a class or two ahead of your lecture because you're putting all the materials

together. The second year, you're kind of roughing out, smoothing out the edges.

And the third year, you're feeling pretty confident that you've found the things

that work. You've got exams that work, you've got homework. So after about

three years, it becomes a matter of keeping current and probably putting it ...

In the semester where you've got a brand new course, you don't have a lot of time

left over. You always have service responsibilities. There are committees that

you have to serve on. Then you've got to keep your research rolling along and

then you probably have to get grant proposals. You have to kind of always have

that cycle going. And, for junior faculty, all of that's coming together while

they're developing their skills, the skills that are for that. So it's really really

rough the first two years as an assistant. Because you are spending a lot of time

developing your coursework and then you have people mentoring you telling you

"don't spend so much time, you're not going to get tenure on your class work,

you're not going to get tenure on education." [Interview #5, cards # 56, 58-60 of

158]

Even so, two of the study participants focused on teaching early on as assistant

professors and recently were promoted: Dr. Reeves to associate professor and Dr. Smith

to full professor. I asked if there was a conflict in managing the research and teaching demands. Here is Dr. Reeves' response: "I don't know. I just have managed and maybe it's just a quirk, I've been the exception but I managed to get it done" [Interview #9, card #87 of 102]. Perhaps, the endeavor to focus on research *as well as* teaching just simply entails devoting more hours to work. Here is Dr. Smith's response to my question regarding the conflict between research and teaching demands:

> No conflict. I don't have a conflict. Just do it. If I was to choose, if they limited the amount of time I work, if I didn't work 60, 70, or 80 hours a week, and worked a regular 40-hour work week, all my work would be focused on my research. [Interview #1, cards #119-120 of 159].

In summary, the professoriate in the research university appeared to be characterized by independence and autonomy with faculty carrying a heavy work load doing research, teaching, and providing service. However, the successful path to promotion and tenure appeared to be very clear in that conducting funded research is most important and teaching is secondary or tertiary. For this reason, the independence and autonomy attributes appeared to be conditional: a faculty member at a research university perhaps is most autonomous if he or she is first and foremost a productive awardee of funded research. Below is an excerpt that illustrates this point:

> Researcher: How important is it for faculty members in your department to be conducting research?
>
> Dr. Baker: 100%.
>
> Researcher: Very important?

Dr. Baker: Very important.

Researcher: And do most of them abide by this importance?

Dr. Baker: Yes, they lose their job if they don't.

Researcher: So their job is depended on conducting research?

Dr. Baker: Yeah.

The advice for junior faculty included spending the least amount of effort as possible on teaching. Earlier in this chapter I had mentioned that I was unable to recruit assistant professors as my study participants. Given the advice for junior faculty to devote the least amount of effort on teaching, I can understand and appreciate their reluctance in engaging in a dissertation study such as mine that would have offered no reward toward their advancement as a professor. The next segment explores the promotion and tenure guidelines and reward system as noted by the participants.

Promotion and Tenure Guidelines/Reward System at the Research University

Not surprisingly, given the views shared by the participants in the previous section, all 10 participants stated that the reward system at their respective university values conducting research the most. Dr. Smith shared his thoughts:

Because it's easier to get promoted based on doing, conducting, securing external funds, and publishing research. If you do that, you have a much greater likelihood of getting promoted than if you teach. People understand that. How many did you have? You had 18 journal articles and a million dollars in grants? You're promoted. What did you do? Oh you had average teaching evaluations

and you wrote 1 journal article? I don't know what to do with you. [Interview #1, card #130 of 159]

Furthermore, some colleges and departments appeared to have established a minimum funding their faculty members are expected to garner, such as in Dr. Wells' and Dr. Reeves' college. Dr. Reeves shared her college's guidelines:

We're expected to raise 25% of our salary. There is an expectation that we will be involved in research projects that credit us with the salary support equal to 25% of our salary. That's the benchmark and sometimes you meet it and sometimes we far exceed it. Some faculty are sold out at 80% of their time. For example, this past year, I was at some points at 40% and one grant ended and went down to 15% and then within a month back up at 30%. [Interview #9, cards #60-61 of 10]

For Dr. Baker, the expectations are that she brings in "triple digit grants … like hundreds of thousands of dollars" [Interview #2, card #104 of 152]. For Dr. Caldwell, the requirements are as follows:

… the dean in our college has said that in the next two years we are going to be weaned off of much of any support from them and if our research brings in less than 25% overhead, we don't get any of that return. The dean sweeps it all. So people in our research department have to get grants that have over 25% overhead in order for any of that overhead to come back to the department to help defray cost to the department. [Interview #3, cards #2-3 of 165]

Participants such as Drs. Wells and Reeves who were expected to generate 25%
of their salary through external research funds did not see a decrease in their salary if
they were not able to reach that goal. By the same token, they were not rewarded for
exceeding the 25% requirement. Dr. Wells' comments on this point are listed below.
Note she also states that other institutions require a minimum of 50% and thus 25% is a
reasonable amount:

> The flip side of that, to be perfectly fair, is we don't not get paid if we don't make
> it. So we're not on that kind of salary structure. But there is certainly that
> expectation and I also know other institutions that go for 50%. So it's much
> rougher at other places so I can't, I'm not complaining. It's a pretty reasonable
> balance but the difficulty is seeing where is my incentive for going beyond 25%
> because when you are teaching one to two courses a semester, and if your salary
> savings gets up to 50%, you are now like at 150% committed because courses
> take a third to a half of your time depending on the nature of your course. And if
> you're at 25-50% committed to research, you're really beginning to hit the edges
> of what you can possibly accomplish in a reasonable work day or work week.
> [Interview #5, cards #46-47 of 158]

For some participants, obtaining external research funds was a challenge
because, in general, the failure rate is high. Dr. Smith shared his thoughts on the failure
rate and how to respond to that high rate:

> The problem that a lot of people have is that you can write 20 major grants and
> hit 1. The failure rate is high. So I think a lot of people do it but they aren't

successful at it and they don't want to do it again. Well, you know that's just "grow up." Your job in life wasn't necessarily supposed to be easy. I don't know what else to tell people. If it were easy you wouldn't have to have a PhD to do it, right? You wouldn't have had to do all these things. [Interview #1, card #111 of 159]

In addition, some fields appeared to be less successful in academic capitalism, such as noted previously by Drs. Johnston and Baker regarding the emphasis placed by the federal funding agencies on research conducted at the cellular or molecular level. Thus, participants spoke of different strategies they used or intended to use. Dr. Smith shared his strategy for obtaining externals funds to conduct research in the field of education, a relatively difficult field to receive funding:

Researcher: So how do you obtain funding to conduct research?

Dr. Smith: I get funding from NSF, NIH, USDA, and most of my research is done in the area of what they hired me for.

Researcher: So even NIH does distance ed or technology?

Dr. Smith: Well, yes, sometimes you have to sell your soul a little bit to get funding. Unless you're a nanotechnologist studying whatever it is they study and whoever their funding source is has a grant out just for you then you don't have to sell your soul as much, you get the money and do what you want to do. A lot of us, particularly those in education, have to really leave perhaps our comfort area to get grants and so we don't get the grants that are really as closely aligned to what we do as we'd like for them to be. But we get grants because that is what

is rewarded at the university. That's how you get ahead. So sometimes you've got to sell your soul a little bit, unfortunately. [Interview #1, cards #107-108 of 159]

Furthermore, Dr. Smith suggested partnering with others: "You can find somebody, you can partner with somebody, you can find money" [Interview #1, card #110 of 159]. And, Dr. Baker, did use the strategy of collaborating with others when she was unsuccessful in receiving funding in her field of animal behavior:

I was not successful in terms of the academic capitalism, I was not successful in getting funding for animal behavior. … And so where I was successful was using my transferable skills for interdisciplinary work, way back from my undergrad, to work with others in looking at science and society. … My current grants are actually in cooperation with other institutions: with a large university in the East coast and with a non-profit research center in the South Central US. We have two grants. [Interview #2, cards #43-44 and 84 of 152]

For faculty who spend time on teaching, the advice appeared to be to make the effort worthwhile. Dr. Caldwell, an associate professor, shared the advice she received:

… But I've had professors, other full professors tell me that in terms of going up for full professor if you're going to spend time doing anything with teaching, make sure you publish about it. And so aside from maybe doing small incidental papers, doing actual research paper, like I know some of my colleagues have done, I think that's best then with someone in the education field or the assessment field. Because you want a professional. You may be able to fix your toilet and your sink faucet but if you've got a real plumbing problem, you call a

plumber. I have no pretense that I could write a full-blown educational research proposal and get it funded. [Interview #3, cards #146-147 of 165]

However, the possibility of conducting educational research appeared to be dependent on the field with which the faculty were associated. For some science fields, conducting educational research appeared to be considered out of the ordinary. During our interview, I mentioned to Dr. Johnston that the research university did not seem to reward faculty for teaching. His response to my statement is shown below:

Unless you can frame it up as research. And some people do that. But it's very difficult especially if you have a history of doing research, hard core research. … I think it's unusual for somebody like a chemist or a botanist or what have you to do a research thing on teaching. And it mostly comes from folks like you. [Interview #7, cards #106-107 of 110]

In summary, the reward system at a research university appeared to be unmistakably based on the ability to conduct externally funded research. Consequently, some colleges and departments seemed to have begun to establish minimum requirements concerning how much funding a faculty member should generate, although the minimum requirements seemed to be different for each college or department, perhaps based on the viability of the department's or college's field to be successful in academic capitalism. Thus, participants offered different strategies they have carried out in order to be successfully funded when the success rate is so low and when certain fields are not amenable to academic capitalism. The next section explores the effects of academic capitalism.

Effects of Academic Capitalism

As stated by all participants, the push to obtain external research funds in a research university is strong. For example, Dr. Jones' department extends annual reminders to assistant and associate professors:

Oh, very strong push. We have an annual meeting with the non-tenured faculty members, tenure track but they haven't received tenure yet, and the department head and I meet with everyone, with the assistant and associate professors. Big pushes on funding. [Interview #6, cards #58 of 90]

A common subtheme that emerged regarding academic capitalism, besides the push to obtain funding, was the emphasis placed on obtaining funds from agencies that award larger indirect or overhead fees. Another subtheme was how the funds awarded were spent: to support the faculty, their research programs, and their graduate students. A final subtheme was the perspective of distance education as an instance of academic capitalism.

Indirect or overhead costs. Indirect costs, also referred to as overhead costs, appeared to be the monies an institution collected from a funding agency in return for research being conducted at the institution. This fee was in addition to the salary and other support a researcher had requested from the agency. Participants indicated that the push to generate funds also included obtaining funds from agencies noted for paying higher percentages of indirect costs. Below is an excerpt of my interview with Dr. Jones regarding the indirect costs:

Researcher: I've heard this from other departments that faculty members are

encouraged to go for agencies that have high indirect costs or indirect fees, is that

true here too?

Dr. Jones: Sure, oh absolutely.

Researcher: NSF I think has a high ...

Dr. Jones: Oh, you bet. Because that's the payback the university gets. It's like 40

- 50% on top of and they get the mass of it. A little bit comes back to the college

and then the college gives a little bit back to the department but most of it goes to

the university. [Interview #6, card #60 of 90]

Dr. Caldwell's statement was shared earlier of her dean's expectations for faculty

to receive grant awards from agencies that pay at least 25% in indirect costs. She

elaborated on this point:

Researcher: How important is it for faculty members in your department to be

conducting research?

Dr. Caldwell: Yes, well, absolutely. There's no question. In fact, like we were

talking about, the direction is to get a particular kind of research done in terms of

source of funding so that it carries, or it can bear, a large overhead of return.

Researcher: And 25% is the minimum?

Dr. Caldwell: I believe that is right, at least that's what somebody told me

yesterday, 25% is the minimum. Most NSF grant will be like 45% overhead.

What would happen is the dean would take the first 25% and the next 20% would

come back to the department. That's generally the way it works. [Interview #3, cards #100-101 of 165]

The consequences of receiving funds that pay smaller indirect costs appeared to affect the operating budget of the department or college. Dr. Caldwell continued her thoughts on this point:

Many of our professors have been getting by, quote unquote, you know with state funded grants or US Fish and Wildlife grants that only allow 15 - 20% overhead and basically we cannot run our program. In fact, that's one of the reasons why we started running low on funds in our department in the last few years because costs went up and income was not coming in. So, our new department head has said basically we want people doing high dollar overhead research to be able to support our program. Otherwise we probably won't get any money for new positions or anything like that. [Interview #3, card #4 of 165]

Dr. Johnston reflected on the funding he received to develop the online database of images of vascular plants. Because it was awarded by the state's higher education coordinating board, the funding did not include indirect costs. Here are his thoughts on having worked on that grant with no indirect costs:

And I was, again, where I didn't have to worry too much about satisfying the administration's need for indirect costs, to be quite frank with you. Even in '95 I could afford to kind of get a small grant. The coordinating board didn't pay indirect costs to our university but there was some prestige because what we got our archrival didn't get so they were happy about that. But they probably weren't

too happy about the fact, at least from what I saw, there was no heavy indirect

costs. If I was doing NSF work, they would be getting almost half of the

proposal's value in indirect costs. [Interview #7, cards 62-63 of 110]

External funds support faculty, research programs, and graduate students.

Besides the indirect costs, a grant award appeared to contain funds that support faculty,

their research program, and their graduate students. Faculty may require funding support

during the summer months if they are on a 9-month appointment, as in the case for the

faculty in Dr. Jones' department:

One other big motivation, everyone in this department is on a 9-month contract

except for the department head and me. Everyone else is on 9-month. And there

is very little summer teaching so if they want support, they have to get the grants.

We give summer support for the first two years of all new appointments. So

they're given two years to transition into the grant-getting but after that, they

have to get grants if they want more than a 9-month salary. And of course, the

tenure process demands it also. I don't think anyone gets tenure at this place

anymore unless you get grants, at least in the college of science. [Interview #6,

card #48-49 of 90]

Dr. Williams repeated the point of external funds supporting faculty summer

salary (and more):

... But the summer salaries come from the grant, the salaries for the postdocs and

the salaries for the graduate students and travel and conferences and such come

from the grants. [Interview #10, card #75 of 110]

Dr. Caldwell described how the graduate students are supported by externally awarded funds in her department:

… if you bring in a graduate student, you need to have funding assured for that student. You just can't say "Oh gee, I'd love to have that person as a student." Unless you've got a research grant that's going to employ them as a research assistantship, you can't bring them in. You got to have a way to support them. [Interview #3, cards #113-114 of 165]

And, the ability to generate external funds appeared to be connected to the development of graduate programs. Dr. Caldwell continued:

By and large each faculty is supposed to get their research grant funds for their program, for their students. So we don't have a fall back to fill in the gaps and we have a small ability to do that. If a student can't get money to support themselves, it makes it very hard to build a graduate program if you can't do that. [Interview #3, card #119 of 165]

Dr. Johnston's approach to funding students was to fund them jointly with the university:

The better funded program is going to fund its graduate students. If you're writing a proposal in science and usually it's going to be to NIH or NSF, having in your budget money for graduate students ... My personal approach was to fund graduate students in the summer time and let the university fund them in the winter time for economy. And also for a graduate student their only opportunity to teach is being a teaching assistant or working with labs and teaching in the

summer and the winter time. I think there were a few situations where I would

fund a graduate student fully in their first year and their last year but tried to

make sure that they got some teaching in. [Interview #7, card #82 of 110]

Dr. Williams spoke of the graduate and postdoc students he supported through

external research funds:

I have been supporting ... I've got two and half, depending on how you do the

counting, two and a half at the moment. And one postdoc but I often have a lot of

other teaching activities which I have the students who do research for me do

these research projects on the side so in some sense it's teaching research but

that's how I support them. At the moment I have four students, four graduate

students in one capacity or another. That's unusual. I've got one who is going to

graduate in August and is going to Penn as a postdoc so I'm going to lose him

pretty soon. And two others just started so .... Two is probably more of a typical

number. [Interview #10, card #78 of 110]

Distance education. In addition to the indirect costs and external funds that

support faculty, their research program, and their graduate students, another subtheme

pertaining to academic capitalism included pressure from the administration for faculty

to engage in distance education because of the possible revenue that can be generated

through the distance education fees. In some cases, the revenue seemed to trickle down

to the faculty and served as incentives.

Dr. Wells shared the pressure for her college to engage in distance education:

But in talking with other faculty, I think they're going to be ... There's a big

move, and again this gets back to the whole business part of the deal, to be

competitive with online programs. We have an MPH [master of public health]

and there are a variety of universities that now offer completely online MPHs. So

we have pressure from above to find a way to compete in that market. [Interview

#5, card #32 of 158]

Dr. Wilson also has seen the pressure to engage in distance education emerge in

his department, apparently driven by pressure from the legislature:

There's been this thing from the institution, from the top down, legislature said

we need to offer more distance courses so administrators are running around "we

need more distance courses." [Interview #4, card #101 of 175]

And, perhaps this pressure is economic in nature as suggested by Dr. Wilson:

Dr. Wilson: … We can't continue to support the escalating cost of education, I

don't think, ad infinitum. So at some point it's going to have to be an economic

consideration.

Researcher: So do you think, at least in your department, the push for distance ed

is …

Dr. Wilson: And that's economic driven. Absolutely. They don't want to have to

bring all the students in here to campus.

Researcher: The building space?

Dr. Wilson: Building space and cost. If you can stay home and work at a job and

take courses at the same time, you'll be busy earning salary and paying taxes and

not up here sitting in an apartment going to classes and sitting in a classroom. It shifts education away from the intensive, on-campus experience into a more disseminated spread over time combined with work type experience. [Interview #4, card #115-116 of 175]

At the departmental level, the motivation to engage in distance education appears to include a monetary reason. In addition to the service or "altruistic motivation" [Interview #6, card #8 of 90] of offering an online master's program in statistics to students who cannot participate in a face-to-face program, Dr. Jones explained the monetary benefit his department will receive by teaching at a distance:

But there is a monetary one, too. The department will receive some financial benefits, direct financial benefits, from the fees paid by the DL students. So there is some financial also. [Interview #6, card #9 of 90]

Faculty, in turn, appear to receive financial incentives, such as shared by Dr. Baker: "One of the motivators for me to teach through distance education is that I actually get funds back that I can use in whatever I need to" [Interview #2, card #15 of 152]. Likewise, Dr. Caldwell shared the financial incentive she received for teaching at a distance:

Dr. Caldwell: I'm getting a little bit of research money funds for developing distance technology capabilities for some of these courses.

Researcher: And where do you get those funds from?

Dr. Caldwell: Well, it came from the dean. And then the funds to employ the people who are helping me to do this are through the dean as well. But this time I

got it directly. It's only about $6000, but I can use that for anything. I can buy

software, I can hire a graduate student, I can buy equipment, I can spend it

however I feel like I need to add that distance capability, web/online distance

capability to my class. [Interview #3, card #49 of 165]

Conflicts Over the Utilities of Teaching Using Educational Technologies

The fourth subtheme that emerged under the effects of academic capitalism is the

apparent conflicts that arose—chiefly between the faculty and administrators—regarding

the utilities of teaching using educational technologies in a performance system (i.e.,

research university) that places a high importance on faculty's ability to conduct funded

research. And, the conflict seemed to be exacerbated when the administrators, who

appeared to lack an expertise or knowledge about teaching using educational technology,

viewed distance education as an opportunity to be competitive in their respective

education markets and to generate additional revenues through increased student

enrollments and the resulting distance education fees. For example, Dr. Wells'

comments earlier regarding her college's vision to be competitive in the online MPH

market expressed an unrealistic expectations set by the administrators:

Yeah, yeah, it's taken some education because they were originally thinking

"well, we could grow all these students because we can just give them an online

class." No, it doesn't work that way. It's not automated so that you can put 100

students on. I think they had a vision that it was a thing, a product, that you just

put out there and it sort of goes along by itself and takes care of itself. No, it's

still class requiring faculty time, you can't just have a bunch more distance

cohorts and expect one person to now have a class of 100. First of all, you need

to cap it. I don't know how you do more than 20 meaningfully. Probably 15's

better at a graduate level. So you can't have a 60-person class. You'd be doing

nothing but reading emails all day. So I think I've gotten them backed up to

realizing there are a lot of limitations and it's not a magic answer to growth in the

school. [Interview #5, cards #85-86 of 158]

In contrast, Dr. Wells' motivation to engage in teaching using educational

technology did not appear to be financial at all. Rather it appeared to be the personal

satisfaction that resulted from the creativity and challenge of teaching in that modality as

well as the flexibility of not having to teach at night. Therefore, for other faculty

members who may not be personally motivated, convincing them to engage in distance

education would seem to be difficult:

And they're going to have to convince faculty that it's worth their time, especially

tenured faculty. Why would they put the effort in when there's no ... we're not

rewarded for it and there's no incentive. Why go the trouble of having to

completely re-do a course that maybe you've already got going comfortably?

[Interview #5, card #87 of 158]

One perspective of this conflict in mismatched motivations and outcome

expectations may be due to *not* taking into consideration the motivations, outcome

expectations, and concerns of the *multiple* stakeholders. While the faculty may be

motivated by the desire to excel in meaningful scholarship and teaching, the

administrators may be motivated by the need to accrue operating funds through external

research monies with large indirect costs. With such mismatched motivations, the

outcomes expected by each would understandably be different.

The business ethics literature offers the multi-fiduciary stakeholder theory

(Goodpaster, 1991) for taking into consideration the needs of *all* stakeholders.

According to this theory, in addition to the stockholders, businesses can affect and are

affected by multiple stakeholders such as the employees, vendors, competitors,

communities, and countries, and should weigh in the needs of the different parties

equally. Likewise, in the phenomena of academic capitalism and teaching using

educational technology, multiple stakeholders appear to be present and at least include

the faculty and administrators and perhaps even the legislature. Taking into

consideration the motivations and outcomes expected by *all* stakeholders in regards to

effectively teaching using educational technology and being successful in academic

capitalism may be necessary. Without such an approach, conflicts such as the following

may continue to be present:

> Dr. Johnston: … This business of commercialization has been a constant kind of
>
> thing. … Like the fact that we put 30,000 images online has attracted attention.
>
> The systems that we have in place have been in place for a long time. And
>
> they're quite googleable because Google has been picking them up for a long
>
> time. And there is among many faculty these days kind of an entrepreneurial
>
> approach to things. So there is, ... although it's not a direct kind of a pressure, to
>
> try to make some money out of the operation. Throwing some commercials or
>
> something so that it could be self-sustaining. There is also on the other side of the

coin, and again this is not a direct item, but forces from the administration that indicate you shouldn't maybe be supplying all this stuff for free where anybody can utilize it and everybody does.

Researcher: Because it's not password protected at the moment?

Dr. Johnston: No, it's open, to my knowledge anyway. And you have those dynamics in play with regard to what I think maybe the topic of your research is probably. My notion is I'm a public employee and I am reticent to have the public pay twice for what I do. But there a lot of people, especially locally, that kind of would like to put a charge on it somehow. Put a constraint, have somebody register etcetera etcetera. And I'm not sure about WebCT or the systems they have in play now for faculty but I have a feeling you'll have to register to log in.

Researcher: Right, it's not open to the world.

Dr. Johnston: Right. Right. And I've kind of been waiting for them to pressure me into rolling this stuff into that sort of a format. The fact that it's so anomalous, it was started so early on, people probably don't know about it, you have two institutions involved, that center and us and what have you, they just haven't done it. But there's that dynamic in play that relates to I think what you're up to.

[Interview #7, cards #98-102 of 110]

The excerpt below describes another conflict:

Researcher: So then how is your job satisfaction affected by your efforts to teach using educational technology and obtain ...

Dr. Baker: It's actually been improved because when I'm dissatisfied with what's happening at the department level, I immerse myself in the details of the technology and I enjoy it. And I feel successful. I get immediate rewards.

Researcher: So teaching is what you love, of course that's not enough, and so you do the research piece ...

Dr. Baker: Because that's what I'm evaluated on. But I could also very happily just do the research. I could be very happy in a research position.

Researcher: So then it's the kind of money you need to bring in that seems to be the weight on your shoulders.

Dr. Baker: The weight on my shoulders is it's entirely me individually. So this goes back to the capitalism thing. It's like if you have someone who's an entrepreneur, those entrepreneurs are going to be more successful if they're backed by certain infrastructure that's clearly targeted towards that success. But no, our model is that each individual faculty member is like an empire builder of their own. So they're expected to do the PR, the schmoozing, they're expected to actually write and submit and do all the details of not only the grant proposals but also the publications, they're expected to mentor the students, and the graduate students. You end up paying the graduate students to do the research because you don't have the time to do the research but then the graduate student doesn't have the experience and the training that's necessary to do the research right and so that ends up being a little mismatch there too. Then the teaching ends up being

on top of that and really is not even considered in terms of evaluations unless you do poorly. [Interview #2, cards #114-118 of 152]

In summary, thus far, the participants' experiences seemed to indicate that they reap a variety of benefits from teaching using educational technology. In turn, those benefits appeared to serve as rationales or motivation to teach using educational technology even though they faced various barriers such as time constraints, steep learning curves, technical problems, and pedagogical challenges.

Furthermore, the participants' experiences portrayed the professorship in the research university as an independent and autonomous position. However, it is a position with a heavy work load that required a constant juggling of different tasks. The path to successful promotion and tenure in the professoriate appeared to be clearly marked by guidelines that require research productivity through external funds, and therefore, may render the autonomy of the professoriate conditional based on the ability to be successful awardee of external funds. Teaching appeared to be secondary.

With a low success rate for obtaining external funding, participants appeared to make use of different strategies to aid them. The participants also spoke of the importance of large indirect costs from external funds that supplement an institution's operating budget. The grant fund itself seemed to be used to support the faculty, their research programs, and their graduate students. Engaging in distance education served a dual purpose: (a) an altruistic gesture to reach out to potential students who for various reasons cannot become residential students and (b) a monetary gain to the department and perhaps to the faculty from the distance fees paid by the students.

Viewed through the perspective of the multi-fiduciary stakeholder theory (Goodpaster, 1991) that suggests in addition to the stockholders, organizations can affect and are affected by multiple stakeholders such as the employees, vendors, competitors, communities, and countries, perhaps an avenue to dissolve the apparent conflicts in mismatched motivations and outcome expectations between the faculty and administrators, and even the legislature, would require taking into account the goals and expectations of each stakeholder. The last research question examines the participants' job satisfaction. That section is next.

Research Question 3. How is the experience affecting their job satisfaction?

The participants shared a demanding work life that was characterized by constant juggling and multitasking. Therefore, I was surprised that the majority of the participants stated they were very satisfied with their jobs. Six stated they were highly satisfied with or enjoyed being a professor, three participants were mixed in their responses, and only one stated her satisfaction was low. Some said being a professor was a dream job. Even so, all ten stated they had turnover intentions to leave University A or B at one point or another in the past, although perhaps not the professoriate. However, only two participants appeared to have recent turnover intentions. Many said teaching using educational technology was personally satisfying.

Because each participant's job satisfaction level and the determinants that affect it appeared to be a personal story, the details of each participant's job satisfaction will be shared as a narrative. Each narrative will start with a brief summary of my interpretation

of their job satisfaction followed by a compiled version of their words. The participants are listed in the order in which they were interviewed.

Larry Smith, Interview #1

Dr. Smith, although highly satisfied with his job and University A, frequently thinks about leaving the institution. He makes his turnover intentions public and updates his curriculum vitae weekly. He has received offers but intends to stay for the right offer package. His reasons for leaving would be to move closer to his family and for more money. Teaching using educational technology and being awarded grant funds contribute to his job satisfaction.

I like the freedom I'm given to use educational technologies in the classroom. I think taking that away I would probably be less happy, so less satisfied. I think also when you have external funds, having money - whoever said that money doesn't buy happiness is poor, the saying goes. To have resources to do what you want to do at universities is awfully important. You get to travel, you get to buy equipment, you get to hire graduate students, that's why I'm here. So, yes. So both those things increase my satisfaction. … Every day. I think about it [leaving] all the time. I apply for jobs all the time. I've interviewed for several department head positions. Haven't left. I keep my options open all the time. I tell people that you should always look for better opportunities to better yourself. This institution doesn't wake up every day and say how can we make Larry Smith motivated and happy so I have to wake up every morning and say how do I keep myself motivated and happy. I just got a call last week, somebody asked

me to consider a position at a different university. … It's been a long time since I've been home near my parents and brothers and stuff. I left home about 25 years ago and have been gone for a long time. To get closer to home would be good. In fact, I just applied for a position couple weeks ago. But part of it is where I am in my career. It's hard. I've had some offers and they just couldn't come up with the right package to make me move. While I'm here, I'm as loyal as I can be. I love this university, it's a great place. But they're not waking up trying to make me happy every day. That's me. My wife and I. Trying to make sure our family is happy. Every place is a great place. … I update my vita every week because if an opportunity comes open, I want to do it. … I also want to keep pressure on the administration. If somebody makes me a job offer for more money, I want the administration here to offer me more money to stay, right? It's the only way you can find out what you're worth. They get to put pressure on you, you should put pressure back. And if they don't want you, you should leave. [cards #123-124, 139-146 of 159]

Erica Baker, Interview #2

Dr. Baker's job satisfaction level is very low. The contributors to this low satisfaction level include her departmental culture as well as the manner in which academic capitalism is expected to be practiced at her institution—for her to become an entrepreneur without the necessary infrastructural support. However, teaching using educational technology is a source of positive job satisfaction. Dr. Baker has thought

about leaving University A but has resolved to stay. She appears to be happy with her new department chair.

> My job satisfaction is very low. … I think it's primarily in terms of how people see me and the feedback that I get back from people as to how they see me. I feel that things that are important to me are not communicated to the people who evaluate me. … It's actually been improved because when I'm dissatisfied with what's happening at the department level, I immerse myself in the details of the technology and I enjoy it. And I feel successful. I get immediate rewards. … The weight on my shoulders is it's entirely me individually. So this goes back to the capitalism thing. It's like if you have someone who's an entrepreneur, those entrepreneurs are going to be more successful if they're backed by certain infrastructure that's clearly targeted towards that success. But no, our model is that each individual faculty member is like an empire builder of their own. So they're expected to do the PR, the schmoozing, they're expected to actually write and submit and do all the details of not only the grant proposals but also the publications, they're expected to mentor the students, and the graduate students. You end up paying the graduate students to do the research because you don't have the time to do the research but then the graduate student doesn't have the experience and the training that's necessary to do the research right and so that ends up being a little mismatch there too. Then the teaching ends up being on top of that and really is not even considered in terms of evaluations unless you do poorly. … Because within my college … it's a military leadership model rather

than a business leadership model. So what I see is in academia even though the capitalization has occurred, the business knowledge of how to do things and how to organize things to get them done has not filtered into the people who are being asked to do those kinds of things. I mean it's a simple business organizational strategy type of stuff. The really ironic thing is that we have all this knowledge on this campus but it's all going into publications rather than improving how we ourselves are doing things and training our students to do things more efficiently and more effectively and more flexibly in terms of chasing where the pots of money appear and disappear and reappear. [cards #112-125 of 152]

Sheryl Caldwell, Interview #3

After having been through several different careers, the professorship is her dream job, Dr. Caldwell said, even if it is a difficult one. However, I sensed ambivalence in her responses and wondered if they were due to the elements that lowered her job satisfaction level, such as the apparent lack of academic enthusiasm among some of her students. Indeed, I asked her about the issue of students and that seemed to contribute to lowering her job satisfaction.

She has had turnover intentions and has also wondered if she would be happier at a teaching institution. However, she has resolved to stay for she finds satisfaction in conducting research as well as teaching. She also finds satisfaction in teaching using educational technology and obtaining external research funds.

It's sort of asking myself is this what I want to do? When things do get frustrating and you think all these students nowadays blah blah blah they're not wanting to

learn or it's usually in the classroom where I get depressed because probably one of the main reasons I actually came back and got my PhD and wanted to work at a university was I love learning. I am definitely a lifelong learner and I don't understand why other people wouldn't want to be too. … Because I've had other jobs. I've had other jobs where I was totally in research, totally worked in the lab, and didn't have that educational component, and I think that really truly this is my dream job, although it's not easy. … So right now, I like what we're doing. And I'm loving the people that I'm meeting here at the university in terms of sharing information about technology and teaching and education. That's an exciting whole new area that's keeping me jazzed up. The more I can translate that into augmenting my research program, the happier I'm going to be. So long as I can do that, I'm pretty much going to stay here. And also, I think part of it is being seen as valuable. We have a new department head now and he's put me on some committees that, like the assessment committee, I'm on the undergraduate affairs committee, I'm the faculty advisor for a fisheries group and that sort of thing, those are the kinds of things that I enjoy doing …. [cards #149-162 of 165]

Jonathan Wilson, Interview #4

Dr. Wilson is very satisfied with his job and receives personal satisfaction from teaching using educational technology. He did have turnover intentions in the 1980s. As someone who has been with the department for 50 years, including his undergraduate student years, he seems to find great satisfaction in having shaped, and in the opportunities to further shape, the curricula for his department.

Great [job satisfaction]. If it's not, I'm going to get out of here. … Well, yeah,
there's the competition [in focusing on teaching using educational technology and
obtaining external funds] but I've chosen to work with the ed tech group to
develop that and I get personal satisfaction out of doing that. … In the '80s, I
thought about it enough to apply for a department head's position and got up to
the point of the second interview and decided the reason I wanted out of here was
because of the administrative things that I was getting involved in: the clarity to
realize I didn't want a full-time administrative job. So instead I stayed here and
got out of most of the administrative stuff. I cleared it out. And administration is
not my thing. I got back to teaching and research. Focused on research, and at
that point, I was getting the grants and the graduate students and the post docs
along with a base of fairly good load of teaching. Nothing like I have now. And it
was a balance between teaching and research. And then I had the wreck. … One
of the things that I did as a president was I got our accreditation for the discipline
revised. Our forestry is in the process of making major revisions, and in theirs,
it's going the same way we did. And the whole discipline of forest science,
rangeland ecology, and management have a potential to come together in the 21st
century under natural resources with the clean distinctions that were developed in
the 20th century coming back into a more integrated systems approach. And to
have an opportunity to work in that is, that and working with the students on a
one-to-one basis and mentoring students, is driving me professionally now. So
I've got that high level professional thing of impacting things so I got myself put

back on our society's accreditation panel. I'll have a policy role there as well as in the department. I've got a hand in both sides where I can have a very strong personal influence in how this thing develops over the next few years and I like that. Tried to do some of that in research, have done, and still following up. Some of the things that I've done I think are fairly innovative in decision support systems. [cards #148-158 of 175]

Theresa Wells, Interview #5

Dr. Wells said her job satisfaction level was medium. The factor that lowers her satisfaction level is the constant juggling between the multiple roles of conducting research, teaching, and providing service. She has had turnover intentions but having been in other positions, she finds the professoriate an ideal match for her. The freedom and autonomy inherent in the professoriate are rewarding.

It's the juggling. If I could just do research, or if I just teach, it's the constant juggling and the multitasking and then the administrative burden on top of that because we do teaching, we do research, and we do service and that's what we're evaluated on and it really is a constant juggling of those three and it requires a level of multitasking that really can be exhausting because what we do is so detailed. … What I worry about with constantly juggling all this is "am I mediocre in everything" where as if I could focus maybe I could actually be really good at one of them. … Why do I? [choose to be in a position that requires constant juggling] Why do I ... I'm not sure what else I would do. I've come through ... in my life I've usually worked at jobs for about five years and figured

out everything there is about them that I'm interested in and then I've moved on, but academics is so different because you get that stupid tenure thing and once you have tenure it's very difficult to step out of it and say "okay, now I want to go try something completely different." And there are a lot of rewards to being an academic. There's the freedom to largely choose how you want to spend your day. And the creativity of research, there's always that hope that you might make a difference, something that you're working on might someday prevent childhood cancers. That's a huge carrot out there. I haven't been able to think of another profession that, another way to structure the skills that I have that would be as much fun or as rewarding as what I'm doing, but at the same time it's one of the more frustrating jobs I've ever had. … I keep telling my husband "let's just go be organic farmers." Although neither of us actually has ever farmed and has no clue how we could do it. But we have books and stuff, they're on the shelf for "okay when I've had enough, we're going to go do organic farming in Virginia where it has four seasons." The chair and I used to laugh about franchises. "We just have to find the right franchising and we're out of here." She used to come in about once a month "bagels, what about bagels. The one good bagel shop closed down, they really need a good bagel shop in this town." I think like any other job there are pros and cons. I like the freedom. It's addictive. And really I don't have a boss and that gets pretty addictive too. Yeah, once you have tenure, really, nobody can make you do anything. It really relies on good will and so that's really ... and salary's nice. It's a decent salary. I have this luxurious office as you

can tell, with a window view of some weird view of the parking lot, I see who's coming and who's going. … Like I mentioned, I've really enjoyed moving to an online environment. I think it has made ... I was on the edge of burnout with teaching that class and it has actually made it fun for me again to do that. So that's the positive. [cards #135-142 of 158]

Peter Jones, Interview #6

Dr. Jones started to state that he very much enjoys his job but asked me to clarify my question, whether I meant his overall job satisfaction or his job satisfaction mediated through the efforts of teaching using educational technology. I replied that I viewed those two aspects of job satisfaction as the same because dissatisfaction brought on by teaching using educational technology could affect the overall satisfaction. However, since Dr. Jones' department provides complete infrastructural support, he stated he did not experience any conflicts. My question on his turnover intentions elicited more information regarding his job satisfaction.

Yeah, I have a degree in mechanical engineering and so there's lots of opportunities in industry and I've had a number of job offers. I have sort of two contacts. One, through the internships because I run them. So I get to know lots of people in industry. And two, a lot of our students, about half of our students, go into either industry or the big medical research centers, about half go into academia. And so a lot of them get there and say "would you be interested" but I love academia. It's the greatest job in the world, to tell you the truth. Once you get through tenure. Obviously, I mean I've been doing this for 30 years. This

university is a nice place to work. Amazing improvement since when I started.

Absolutely. … On well ... I won't get deep into politics but I'm a pretty liberal

minded sort of person and it was very very conservative when we first got here.

Two, I think the ethnic diversity increased considerably. Still, it's nowhere near

where it should be but I love that. Just the differences and cultures and just the

strength of the programs. Just our national rankings and lots of different

disciplines. Like statistics we're usually in the top 15. … Absolutely. Pushing

towards top 10. So we're one of the top-rated departments in the nation. So those

are a lot of the good parts of the job. Plus just the town, it's a nice place to live

without the hustle and bustle of the big city where you spend so much of your

time just getting to work and back. [cards #82-86 of 90]

Michael Johnston, Interview #7

Dr. Johnston is part of a field that appeared to be growing out of fashion and that

phenomenon and the resulting isolation due to peers not being replaced appeared to

contribute to his mixed job satisfaction level. Although he has had turnover intentions

and is nearing retirement, he seemed to want to remain in academia for the time being.

Well gee that's a loaded question [regarding his job satisfaction]. To be honest

with you, of course my situation is unusual. And I am 63 so I could retire, I'll be

64 in August. And I could really retire just about any time. So if I was horribly

dissatisfied with what I'm up to, I'd be out of here. On the other hand, I'm part of

a discipline that has kind of been defined as being archaic or nonfunctional

locally. So the botany program's kind of disappeared. And that's not a satisfying

thing. Or, my colleagues when they retire and they move on, they aren't replaced by botanists. So I've kind of gone through an isolation thing, which has its pluses and minuses to be honest with you. … Well I thought about leaving many times but I never really found a position that would offer me what I have here. And it's a little complicated but the fact is at an institution like this university … at an institution like this one, you have certain deficiencies academically but because of those deficiencies and the lack of scrutiny, you have a lot of freedom and I've enjoyed that freedom, to be honest with you. [cards #90-97 of 110]

Carl Andrews, Interview #8

Dr. Andrews enjoys being a professor, although he finds certain aspects tedious at times. He considers teaching using educational technology and obtaining external research funds just part of the job and those two did not seem to affect his satisfaction level negatively. He did not appear to have turnover intentions. He finds his department culture and collegiality satisfying.

I enjoy being a professor at the university. It's not always ... when I'm grading finals sometimes ... I get tired of that at times but I think all in all most of us who are here really like, we like teaching, we like doing research, like interacting with interesting people both within and outside the department. Particularly in our area we could all make more money in private industry. … I have not thought seriously about it [about leaving University A or the professoriate]. … Well, the more likely would be to go to a different institution but I've been ... maybe early in my career I did but it's been quite a while ago. As long as ... I think the

collegiality in this department is really good. If that changed I might consider looking elsewhere. … Well, who the department head and his or her expectations, the way the state treats ... the university funding coming into the department. I know that some schools particularly 20 years or so ago some of the schools in the Midwest were having trouble giving raises and they were even taxing departments after the fact. So there were people who left institutions just because it was viewed as though they were never going to get raises and they weren't being rewarded compared to their equals at other institutions. … I have had colleagues leave for elsewhere for various reasons but and it's often the case that a good professor at a given school, to get them to move elsewhere, the new school has to offer a substantial raise. So in this profession some of the ... there are some people who use that as a way of getting raises. Moving around. I think our department has done a reasonable job of retaining people. [cards #64-71 of 74]

Lindsay Reeves, Interview #9

Dr. Reeves stated that she is very satisfied with her job. One the one hand, the experience in teaching using educational technology yields creative satisfaction but on the other hand, the technical problems such as problems with student access are a source of dissatisfaction. She appeared to not have had serious turnover intentions.

Very satisfied. … I would say ... I was going to say sometimes it depends because I'm really pleased with what I've been able to create, sort of an artistic pleasure. I look at that page and sometimes think gee this is really neat. This

sitting up there on the Web, this is my course. On the other hand when students

aren't able to access it and there are problems, it's probably a wash. … When you

get done recording and it's all there and with the fade-in music and fade it out,

and kind of get this little video, sort of the mini movies. When you see the

completed video that's sort of a mini movie, I get a great deal of satisfaction in

that. I do. … I've not thought about leaving the professoriate or academia. I left

the practice of law to come into academia because I grew tired of the fighting.

And this is my niche in terms of teaching and being able to carry out my role as

an advocate but in the teaching realm. In terms of in another position, I would

say not recently. Occasionally a job opening will come up and I'll look at it pretty

closely and think do I want to move there, looks like a really interesting position.

I thought about moving back to the northwest to be closer to family from time to

time. And I maybe if the right position were to come open at the right level but

right now I have been advancing in a way that I think people that supervise me

are trying to make it meaningful and keep me here. [cards #90-94 of 102]

James Williams, Interview #10

Dr. Williams is very satisfied with his job. The factors that contribute to his

turnover intentions or job stress seem to be related to juggling family and work life and

not necessarily from his work life alone. He finds teaching using educational technology

compelling enough to invest the extra hours it requires.

I love it here. This is good living. … This is the best job in the world. I get to do

physics all day and I get paid to do it. Man, that's good living. I follow, I get to

work on the most interesting questions that be, the university affords me a safe

place to go after the most interesting questions about the fundamental universe.

The country I live in has enough resources to afford to support me in having

students and postdocs and equipment and travel and wonderful colleagues around

the country to go ask these questions and go about the business of answering

them. It's remarkable. Some of the best and the brightest minds wander around

the hall so I could go upstairs and talk to them or down the hall and talk to them.

It's remarkably good. I think about the guys I went to college with and they're off

in industry, I mean man, my peers are probably making 2, 10, maybe 20 times

what I'm making. I don't think ... I make enough so I'm okay there. I don't think I

would trade. I'd rather make this much money and get to do what I do than make

20 times as much to do what they do. And let's be real clear. If I could hit a major

league curve ball I'd do that instead but I can't. … I see those as being completely

independent. [regarding job satisfaction affected by teaching using educational

technology and obtaining external research funds] I am willing to put in extra

time in my teaching because I enjoy it, I do not, this is me personally, I don't

speak for everybody, I like teaching. I can't stand in a classroom in front of

people and for it to be boring. I don't like boring things in my life. And I'm

willing to put in 10, 12 hours a lecture to make that lecture be fun. So I put in the

extra time and I work very intensely so they're in conflict but I put in enough

time so that both get done at a level that I'm happy with. There is conflict, there is

no question about it, but I just try to put in enough time such that they're ideal. I

mean ... you want to talk about real conflict? The real conflict is I've got two kids

at home and a wife on the tenure track which is becoming a much bigger issue.

That's what's hard. Spending my time teaching, that's a piece of cake compared to

keeping a wife and kids happy and well attended to in some sense. Fifty years

ago scientists in my business were wealthy white rich men and they would just

spend all their time in a lab and they wouldn't come home. They'd come home or

they wouldn't come home. When they came home their wives or the servants had

made dinner and they ate and they would go back to the lab. And they would go

back to the lab on the weekends and none of them had mistresses and if they ...

they would create one that didn't exist so their wives would leave them alone for

... yelling at them for going into the lab so much. That's the hard part. … Sure.

[regarding turnover intentions] All the Yankees think about leaving. All the

Yankees are thinking about leaving. There is a culture of ... one of the things that

brings all the Yankees together is they talk about how much they hate this place.

Okay, that's just the deal. …. Do I think about leaving academia? I don't know. I

love it. I'm having an awful lot of fun. Most of the people I revere as they get to

their late stages in life or late stages in their career as the funding agencies kind

of start to push them out because they want money for the younger people, you

know, think about administrative positions, department head, dean. My wife and

I talk about "Hey, let's go to Wellesley. Wouldn't it be great, we'll go teach at

Wellesley, wouldn't that be a wonderful thing?" It would be fun for about a

semester or two. Or, we'll go back home and work on Wall Street and get rich but

that's not .... Look, if they came calling for her and they could find a position for me, I'll go. I'm content. The thing that makes me think about leaving is not the teaching or the lack of support for the teaching. [cards #92-107 of 110]

Summary of Findings

The purpose of this interpretive critical inquiry included coming to understand the experience of faculty at public research universities who teach using educational technology and their perception of how the demands of two apparently conflicting requirements—teaching using educational technology and obtaining external research funds—affect their job satisfaction as professors. Three research questions were asked to guide me in coming to understand the faculty experience. The research questions were: (a) What is the experience of faculty members who teach using educational technology at a public research university? (b) How is the experience affecting them as more demands are placed on faculty to obtain external research funds? and (c) How is the experience affecting their job satisfaction? In this chapter, based on the themes and subthemes that emerged as a result of analyzing the interview data, answers were provided to the three research questions as findings. This section summarizes the findings for each research question—first as an overview in a table format, Table 26, followed by the details.

Table 26. Summary of the Findings Per Research Question of the Study

Research Question	*Corresponding Findings*

#1. What is the experience of faculty members who teach using educational technology at a public research university?	1) Variety of educational technologies were used to meet different learning needs
	2) Benefits, rationale, or motivation in teaching using educational technology enhanced personal satisfaction such as:
	   a. Creativity in teaching using educational technology
	   b. Opportunity to extend participant efforts
	   c. Pedagogical advantages (e.g., enhances learning, reduces need for furious note-taking)
	   d. Opportunity to reach distance students who otherwise would not participate in higher education
	   e. Flexibility and convenience to students as well as faculty
	   f. Lifelong learning
	3) Barriers
	   a. Time constraints
	   b. Steep learning curves (in both learning how to use the technologies and pedagogy of teaching using the technologies)
	   c. Technical problems
	   d. Addressing pedagogical challenges
	4) Institutional/departmental support
	   a. More institutional/departmental support relieved participant burden/barriers
	   b. The amount and quality of departmental or college support provided depended on administrator experience, expertise, and knowledge in teaching using educational technology

Table 26. (continued)

Research Question	Corresponding Findings

#2. How is the experience affecting them as more demands are placed on faculty to obtain external research funds?	1) The professoriate in the research university
	  a. Work life attributes included autonomy, although perhaps conditional, independence, heavy work load, and constant juggling of tasks
	  b. Conducting funded research was primary
	  c. Teaching was secondary or tertiary
	  d. Focus on teaching after earning tenure and promotion to at least associate professor
	  e. Advice to junior faculty – teach as little as possible
	2) Promotion and tenure (P&T) guidelines/reward system at the research university
	  a. Based on conducting funded research
	  b. Guidelines/reward system of some departments or colleges included a minimum amount of funds to be garnered
	  c. Strategies to be successful awardees when failure rate is high (e.g., partner or collaborate with others)
	  d. Conduct educational research if possible
	3) The effects of academic capitalism
	  a. Funds awarded by agencies that pay large indirect or overhead fees - priority
	  b. Grant funds supported faculty summer salary, faculty's research programs, and graduate students
	  c. Distance education is a means of academic capitalism
	4) The conflicts over the utilities of teaching with technologies
	  a. Not taking into consideration the multiple stakeholders seemed to cause conflicts
	  b. Need for multiple stakeholder perspective (e.g., multi-fiduciary stakeholder theory, [Goodpaster, 1991])

Table 26. (continued)

Research Question	Corresponding Findings
#3. How is the experience affecting their job satisfaction?	1) Participants were mostly satisfied with their jobs 2) Some considered the professoriate a dream job 3) Teaching using educational technology enhanced personal satisfactions 4) Most participants had turnover intentions at one time or another but only a few had recent turnover intentions

Research Question 1: What is the experience of faculty members who teach using educational technology at a public research university?

The participants used educational technology to teach in a variety of ways with different goals or motivations in mind. Some pedagogical goals included increasing learner-learner interactions and providing opportunities for students to actively listen and absorb the lectures instead of focusing on taking down the copious amounts of notes. Still some used it to supplement their face-to-face courses while others used it to teach online courses or deliver distance education. The tools they used ranged from PowerPoint slides, to audio and video clips, and to asynchronous discussion boards.

The participants appeared to find the experience of teaching using educational technology personally rewarding. They seemed to enjoy the creative outcomes as well as a sense of service in delivering higher education to remote students who otherwise would not have been able to participate in higher learning. Some thought teaching using educational technology afforded pedagogical improvements as well as flexibility and convenience for the students and themselves.

However, they appeared to encounter a variety of barriers that included time constraints, steep learning curves, technical problems, and pedagogical challenges. Strong institutional and departmental infrastructural support appeared to alleviate some of the barriers. The participants who seemed least challenged by teaching—meaning, who experienced fewer barriers—using educational technology seemed to be those with the most infrastructural support.

Research Question 2: How is the experience affecting them as more demands are placed on faculty to obtain external research funds?

A participant's work life as a faculty member in a research university appeared to be characterized by autonomy and independence but with clear expectations to be conducting research that is externally funded, the most important reward criterion. Thus in the light of this distinct reward criterion, the autonomy attribute seemed to become conditional autonomy; faculty appeared to be autonomous as long as they were productive awardees of external research funds. The second or third criterion appeared to be teaching. Thus, among the triumvirate research university's mission of research, teaching, and service, clearly funded research rested at the apex followed by service and teaching at the base. Please see Figure 4 on page 173. The participants also portrayed a work life exemplified by constant juggling of tasks, which appeared to be a source of job dissatisfaction.

Of the externally funded grants, those with higher indirect costs appeared to be preferred by the administration and these fees seemed to be used to augment a department's, college's, or institution's operating budget. The participants also spoke of

how the funds awarded to them via grants were used: to support their summer salaries, to help build their research programs, and to fund their graduate and post doctoral students.

Because obtaining external research funds appeared to be very competitive with a low success rate, participants shared different strategies they have used or intended to use to be successful awardees. Some stated they conducted research in areas where funding was more readily available and some collaborated with other faculty members at their institution or elsewhere. Some participants also shared their intentions to explore opportunities to conduct educational research. However, conducting educational research appeared to be out of the ordinary for participants in the science fields.

Research Question 3: How is the experience affecting their job satisfaction?

Surprisingly, a majority of the participants appeared to be satisfied with their positions at either University A or University B. Many of them shared that the professoriate is an ideal job. However, all of them had turnover intentions at one time or another although only two had recent turnover intentions. The reasons behind the turnover intentions appeared to be both personal and professional. The personal reasons appeared to include an opportunity to move closer to their extended families. The professional reasons appeared to include a strategy for salary increase. Teaching using educational technology for many appeared to add to their job satisfaction.

This chapter explored the findings pertaining to the three research questions. The next chapter offers conclusions of the study; implications for students, faculty, research universities, and HRD; recommendations for future research; and three working hypotheses.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The previous four chapters were *Introduction*, *Literature Review*, *Methodology*, and *Data Analysis and Findings*. In the first chapter, *Introduction,* the field of human resource development (HRD) was introduced and the problem statement, purpose of the study, research questions, as well as the significance of the study were presented. In the second chapter, *Literature Review*, a review of literature of the three constructs germane to this study, namely educational technology, academic capitalism, and job satisfaction, were provided.

In the third chapter, *Methodology*, the theoretical paradigm and research strategies for this study were shared. In addition, four theories—two implicit and two explicit—were offered for the purpose of triangulation of theories. The implicit theories were: (a) teaching using educational technology is more effective than teaching traditionally without educational technology; and (b) leadership support (e.g., department chair support) will help resolve some of the first-order barriers (e.g., lack of technical support personnel) that serve as obstacles to teaching using educational technology. The explicit theories were: (a) human capital theory—investing in human capital typically in the form of education and training can engender economic (or performance, in the context of my study) gain at the individual, organizational, or societal level (Becker, 1992; Sweetland, 1996; Schultz, 1961; Torraco, 2001); and (b) technology for social inclusion—attending to physical, digital, human, and social

resources—is necessary if technology is to be integrated meaningfully into society, or in the context of my study, into public research universities.

In the fourth chapter, *Data Analysis and Findings*, the themes and subthemes that emerged as a result of analyzing the interview data were presented as findings. In this fifth and final chapter, *Conclusions, Implications, and Recommendations*, the summary of the study; conclusions to each research question; conclusions on triangulating the findings against the two implicit and two explicit theories; implications for students, faculty, research universities, and HRD; manuscripts planned for submissions to peer-reviewed journals; and recommendations for future research will be presented. The final offering will be three working hypotheses.

Summary of the Study

This study was an interpretive critical inquiry that attempted to come to understand the experiences of faculty at research universities who teach using educational technology in the present academic capitalism era, and how these experiences affect their job satisfaction. The study was carried out in the south central region of the US, at two research universities, University A and University B, located in the same city and components of one university system. University A was a large land-grant institution with 10 colleges. University B was a small health professions university with six components distributed throughout the south central state. One of the components located in the same city as University A was a research site.

The participants were selected based on purposive sampling and were 10 tenured faculty members who actively engaged in teaching using educational technology. The data collection included ethnographic interviews, participant observations, and document analyses and occurred over an 8-month period between April and December 2007. The interviews were held between May and June 2007, the participant observations between April and May 2007, and the document analyses between April and December 2007.

The average interview length was one hour and 10 minutes. The interviews were audio recorded, transcribed, and analyzed using Lincoln and Guba's (1985) approach to content analysis. Eleven major themes emerged along with many subthemes and both the themes and subthemes became the bases of the findings. The findings, in turn, were presented as answers to the research questions. The summary of the findings were provided in Table 26 on pages 218 through 220. Using the emerged themes and subthemes, as well as the findings, the conclusions to the three research questions are provided below.

<center>Conclusions</center>

Research Question 1: What is the experience of faculty members who teach using educational technology at a public research university?

Based on the themes and subthemes that emerged as well as the findings, I conclude that a variety of educational technologies are being used by faculty to teach and they choose the tools for pedagogical reasons (e.g., Dr. Smith's desire to achieve learner-learner interactions) or because they facilitate delivery of teaching and learning (e.g., Dr. Wilson's use of online testing to assess large classes). Furthermore, teaching

using educational technology is likely a personally rewarding experience for faculty who have overcome the second-order barriers. Second-order barriers are obstacles inherent to a faculty member's belief system and philosophy about teaching and learning (Ertmer, 1999, 2005) and none of the participants questioned the utility of educational technology as a teaching and learning tool.

The personal rewards faculty are apt to experience from teaching using educational technology include creativity in developing the course materials and in learning to teach in a new environment. Another personal reward is the ability to extend their efforts because once the upfront time-consuming investment has been made in learning the tools and developing the course materials, the backend result is time efficiencies gained because educational technology does provide tools such as online testing that can save faculty time. Still another personal reward may be pedagogical in that faculty appreciate the educational gains possible through educational technology. For example, because of educational technology, students may be able to listen to a lecture and focus on the content being delivered rather than serving as a scribe busily taking notes. Another personal reward may be a sense of service reaped from providing educational opportunities to distance students who otherwise may not have been able to continue in their higher learning. And for those from departments committed to offering distance education, educational technology, especially asynchronous online teaching and learning, is a means for faculty to deliver teaching and, in turn, for students to participate in learning in a flexible and convenient approach—anytime anywhere. Because the experience of teaching using educational technology is personally rewarding, faculty

tend to engage in it, even if typically they are not rewarded by the institution. Furthermore, teaching using educational technology is fraught with many barriers.

Barriers include the time-consuming nature of the activity: the time needed to overcome the steep learning curves in learning how to use the technologies as well as the pedagogy of teaching using educational technology; in developing the technology-based course materials; in keeping up with the constant changes to the technology; and in responding to the students who find the faculty more accessible because of technology. In addition, regarding students, because of educational technology and distance education, the number of students enrolling in a course can increase, and thus, faculty time spent interacting with them and assessing their learning can also increase.

Another barrier is the technical problems inherent in technology. Because the working status of technology in general can be unpredictable, teaching using educational technology can also be unpredictable. Without prior notice, an online course management system that worked well one day may not work the next until a significant amount of time is spent by the technicians troubleshooting the problem. Furthermore, when technical problems occur, students rely on faculty as the first people to contact and faculty are burdened by the amount of time necessary to respond to them. A final barrier is the pedagogical challenges faculty may face as they try to convert a face-to-face teaching activity into the online medium.

One mechanism to reduce the barriers seems to be through institutional or departmental commitment to provide solid infrastructural support, especially one comprising the four necessary resources—physical (e.g., hardware and software), digital

(e.g., content), human (e.g., for training), and social (e.g., organizational)—as advocated by Warschauer (2002) in his theory of technology for social inclusion. Faculty of one department that provided physical, human, and social resources reported no technical burden or need to learn the technology. In fact, their barriers were pedagogical challenges such as concerns on how to convert activities that traditionally were held face-to-face such as team meetings into activities that would work over the distance. Therefore, another conclusion I can make is the absence of technical barriers will facilitate faculty's abilities to focus on the pedagogy of teaching using educational technology.

In triangulating the two implicit and two explicit theories with the findings of this study, different confirmations were found. In triangulating the findings with the implicit theory that teaching using educational technology produces improved learning over teaching traditionally without educational technology, the findings indicate that faculty take into consideration more than just the pedagogical gains: they are also motivated by other personal rewards gained such as the experiences of being creative, flexibility, and convenience. The excerpts below illustrate this point.

> Dr. Johnston: Well, it's been interesting and exhilarating from an academic point of view. … but from a teaching point of view I think the interest is in the development and the kind of creative manipulation of materials for a faculty member. The interest is not necessarily in the response you're going to get from either the administration or the student. [Interview #7, card #50 of 110]

Dr. Wells: … the creativity and learning new technology. Academics are

generally inquisitive people who are always sort of in a learning mode. That's

what drew us into this the first place so it's very refreshing to be challenged with

teaching in a different environment. I was getting a little burned out. … I was

pretty much ready to say "I've had it, I've been doing this for six or seven years

… ." … So this has rejuvenated my interest in teaching that course, by taking it

into a whole different direction. [Interview #5, cards #117-118 of 158]

In triangulating the findings with the implicit theory that leadership support will

help alleviate some of the first-order barriers (e.g., lack of infrastructural support), the

findings indicate that this theory appears to be true *if* leaders are knowledgeable about

and have experience in the delivery of teaching using educational technology or distance

education. Without prior knowledge, those in leadership positions appear to have

unrealistic expectations. The following excerpts illustrate this point. The first two

excerpts by Dr. Jones and Dr. Andrews, respectively, represent support by leadership

with extensive knowledge whereas the third excerpt by Dr. Wells represents an absence

of support by leadership—administrators who apparently lack the knowledge about

teaching using educational technology.

Dr. Jones: Our current department head started in March of 2005. He came to us

from a university in Australia and had been teaching distance learning courses

through the MBA program there. So he had a vast experience in doing this.

Number one. And number two, one of our faculty members has had a very strong

interest in distance learning for a number of years. And matter of fact I think

most people on this campus would say he knows more about the technology of distance learning than anybody else by far. [Interview #6, cards #7 of 90].

Dr. Andrews: … the nice thing is our department has graduate students so that I just have to walk into the classroom and teach and they'll come in and have everything set up. And then at the end of the class they will take care of the Camtasia recording and the Centra recording. … You know our department is ... well it goes from the department head who's pushing this opportunity for us. We have a full professor who's also the associate dean for distance , I don't know, it's education or something like that. That associate dean, he's the one in charge of the graduate students, but he hired a full time person, who handles all the technical details. She's not a statistician but she's really great as far as making sure that the pen works, making sure the recording's okay and so I think that we're really lucky in our department. [Interview #8, card #14-17 of 74]

Dr. Wells: …. This school unfortunately made this decision without any practical resources so now they're sort of playing catch-up. And we realize that it's not as simple ... I think there were administrators who thought ... one thing they thought was well you can just record all your onsite ones and just put them on the Web. And so I've gone back to multiple meetings and said "that's the poorest use of both resources." That's like the worst you could do to students. Because it's like videoconferencing but even worse because you have no interactions and plus you usually have poor quality of the recording. And having gotten into the literature of distance delivery, I've learned that's just a horrible, horrible way to try to

teach. So I've gone back to them and said "there's a quality issue and I'm going to be embarrassed for us as a school if that's the default, if people just record their lecture and throw it up. It's a different environment and faculty need to understand that. They're going to need some training and they're going to need to do some re-thinking of their materials because a voice-over PowerPoint is not the way to go every single time. And for some it may get worse but mostly it's not the environment where they're going to learn. You're going to drive students nuts doing that." So they've at least stopped saying .... [Interview #5, cards #83-85 of 158]

In triangulating the findings with the explicit human capital theory, the findings seem to confirm that the investment in education and training of the human capital will yield performance gain. For example, as mentioned above and illustrated through Drs. Jones', Andrews', and Wells' remarks, the experiences of the participants—Dr. Jones and Dr. Andrews—with knowledgeable leaders seemed to contrast sharply against Dr. Wells' experience, whose leaders appeared to lack the knowledge about delivering distance education. The infrastructural support available at Dr. Jones and Dr. Andrews' department appeared to be because of the experience and expertise of the leadership. Consequently, Dr. Jones and Dr. Andrews were the two participants whose stated barriers were *pedagogical* and not *technological*. The excerpt below illustrates this point:

Researcher: So what are some barriers and/or challenges?

Dr. Andrews: I think the communication, answering questions ... the problem that the distance students might have is they could be puzzled by an aspect of the lecture and they can't get an immediate response. They are often watching this at night and they can post or send me an email but it doesn't get an answer until the next day.

Furthermore, note, in Dr. Well's remarks above, this statement: "And having gotten into the literature of distance delivery, I've learned that's just a horrible, horrible way to try to teach" [Interview #5, card #83 of 158]. Because of her self-directed *education* ("having gotten into the literature of distance delivery"), she was able to come to an understanding that appropriate instructional design is necessary for effective and meaningful student learning:

And so I've gone back to multiple meetings and said "that's the poorest use of both resources." That's like the worst you could do to students. Because it's like videoconferencing but even worse because you have no interactions and plus you usually have poor quality of the recording. [Interview #5, card #83 of 158]

Thus, the excerpts above illustrate two benefits of human capital development for teaching using educational technology in the academic capitalism era. One, knowledgeable leaders are instrumental in developing a supportive infrastructure for faculty teaching using educational technology, which is typically a very time-consuming activity with many other barriers, so that the faculty may also seek and conduct funded research—a *must* for survival as faculty in a research university. Two, faculty knowledgeable in teaching using educational technology can become the provider of

learning for leaders, guide them, and perhaps even *take on* the leadership role in the arena of teaching using educational technology.

In triangulating the explicit theory of technology for social inclusion, the findings related to the infrastructural support available at Dr. Jones and Dr. Andrews' department, again, appeared to confirm that indeed institutional and/or departmental infrastructural support of at least physical, human, and social resources is necessary for effective integration of educational technology for teaching. Their physical resources included a system for recording the audio and video of the lectures; human resources included the associate dean for distance education, a full-time staff member, and graduate assistants; and their social resources included knowledgeable leadership and a culture of commitment to quality teaching: "We just have a commitment to good teaching. We always have. One demonstration of that is the enormous number of our faculty members who have won university and college level teaching awards. There has always been a commitment to teaching from the top down" [Interview #6, card #39 of 90].

Furthermore, research-oriented faculty also taught using educational technology, an activity the findings have shown to be very time-consuming if no support is provided:

> Well I think what really scares off a lot of faculty members is that they'd have to
> learn all the technology because we're busy to begin with, especially our
> department which is very, very research-orientated. So to get anybody other than
> a couple of us older people to do this, and I don't do much research anymore
> because of my administrative duties, to get any of the real research faculty to do

it, they would never have done it without all the support. [Interview #6, card #26 of 90]

Research Question 2: How is the experience affecting them as more demands are placed on faculty to obtain external research funds?

The conclusion regarding this research question is clearly the faculty reward structure at research universities is based on faculty productivity in obtaining external research funds and on the scholarship of research. Boyer (1990) described the four scholarship functions in the professoriate: scholarship of discovery, scholarship of integration, scholarship of application, and scholarship of teaching. What is not clear at this point is whether the reward structure discriminates between the scholarships of discovery, integration, and application. However, what is clear and can be concluded is that the scholarship of teaching is rewarded minimally at research universities. Furthermore, discovery through educational research appears to be uncommon in some science fields and perhaps discouraged.

Another conclusion regarding this research question that can be made is faculty who teach using educational technology do typically experience conflict between spending their time on that effort and on the scholarship of research because while one effort is personally rewarding, the other is institutionally recognized. Consequently, faculty tend to place a higher priority on the scholarship of research at the expense of teaching. Therefore, another conclusion to draw is that teaching is of secondary importance at research universities; the implications of this conclusion for students will be discussed later. Even though teaching using educational technology may not be

rewarded, some faculty are professionally rejuvenated by the personal rewards gained from the effort.

A final conclusion regarding this research question is that conflicts in the utilities of teaching using educational technologies do exist between faculty and administrators in terms of mismatched rationales or motivations, and therefore, in mismatched outcome expectations. While faculty appear to be motivated by the personal satisfaction in teaching using educational technology, administrators seem to be motivated by the revenue gain possible through the additional student tuitions and distance learning fees. Thus, I suspect these conflicts between the faculty and administrators are obstacles in achieving the overall performance goals of the organization, whatever the goals may be. Although the clearly known performance goals of this organization—the research university—are success rates in obtaining research funds with large indirect costs, and although faculty appear to understand this requirement completely, just by the findings that illustrate how faculty reap many personal satisfactions from teaching using educational technology, I wonder if faculty are driven by other performance goals, those unimportant to the administrators and organization.

The above depiction of conflicts between the faculty and administrators, and perhaps even the organization as represented by its performance goals, connote a system of multiple stakeholders, each possibly with different goals and needs. In *Chapter IV*, the multi-fiduciary stakeholder theory (Goodpaster, 1991) was offered as a possible framework to begin to address these conflicts. Perhaps a more fundamental step required is reviewing the literature for a broader look at how multiple stakeholder needs and goals

can be addressed, especially in the organization that is the research university. Or,

perhaps, an even earlier step is to determine *who* the stakeholders are. Up to this point, I

have not mentioned the student as another possible stakeholder. However, given that

students typically outnumber any other constituents at universities, even research

universities, I wonder if they can *not* be considered a stakeholder. Furthermore, the

American public may expect the students, especially undergraduate students, to be

included:

> The education of undergraduate students has been and remains the signature task
>
> of U.S. universities. Never mind if more dollars are spent for research or health
>
> centers, or if larger numbers of graduate and professional students attend; in the
>
> minds of the American public the principal purpose of universities is to transform
>
> young people into "college graduates." During the current era, that view has
>
> deepened despite stagnation in undergraduate enrollments and expansion of other
>
> university activities. This prominence in itself has powerfully affected the
>
> development of these institutions. (Geiger, 2004, p.76)

Clearly, though, including the students as a stakeholder will broaden this problem of

conflicts between the multiple stakeholders, and maybe is a topic for further research.

Research Question 3: How is the experience affecting their job satisfaction?

The surprising finding for me was that most of the participants were very

satisfied with their jobs, even though the work load was very heavy and demanding and

required constant juggling and multitasking. A significant contributor to this positive job

satisfaction seems to be the autonomy and independence inherent in the professoriate

once faculty become tenured. Thus, a conclusion can be made that tenured faculty are satisfied with the professoriate although the daily work life may be unsatisfactory.

Given that all the participants had turnover intentions at one point or another yet did not leave, I am uncertain about the role of turnover intentions for faculty at research universities. Another conclusion regarding this research question I can make at this point is the autonomy and independence inherent in the research university for tenured faculty appears to add to their intentions to stay.

<div align="center">Implications for Students, Faculty, and Research Universities</div>

The dichotomy is as faculty, ultimately we're just trying to do our research. Most of the funny thing that students don't always get is that really, we're researchers. We're trained to do research, at least in my field. It may not be so much in other fields. But we're trained to do research, and that's what we love and what we're trying to do. [Interview #5, card #33 of 158]

<div align="center">*Implications for Students*</div>

As shared by Dr. Wells above, faculty at research universities appear to be first and foremost researchers. Coupled with a reward system that values conducting externally funded research, data such as the faculty profile at University A that indicate roughly half of the faculty population (1,929 out of 3,875) comprise teaching assistants and faculty on non-tenure track, and the findings from this study that clearly suggest teaching is secondary, one can argue that those being shortchanged due to the practice of academic capitalism in research universities are students. Slaughter and Leslie's (1997) and Fairweather's (2005) research support that undergraduate students are placed

especially at a disadvantage. Then, the implications to undergraduate students are that perhaps obtaining an undergraduate degree from a public research university is not in their best interests in terms of the focus and attention the tenure-track and tenured faculty are able to extend to them.

On the other hand, a benefit may exist to the graduate students because of the "spillover" effect from research into teaching (Slaughter & Leslie, 1997, p. 123). Slaughter and Leslie found faculty members were able to incorporate findings of applied research into their teaching although they found the spillover of basic research projects was too complicated for undergraduate teaching. Perhaps the first step in addressing this implication of whether academic capitalism shortchanges students, especially undergraduates, is to consider them a stakeholder.

Implications for Faculty

Again, given that the reward structure at the research university is based on the ability to obtain external research funds and the scholarship of research, one can argue that faculty would welcome the opportunities to conduct externally funded research. The difficulty, then, seems to be a low success rate in being awarded external funds. One contributor to this low success rate may be that the process of obtaining external funds is an entrepreneurial activity and the faculty, who are essentially researchers, are not equipped to be successful entrepreneurs. Dr. Baker made this point:

> So what I see is in academia even though the capitalization has occurred, the
> business knowledge of how to do things and how to organize things to get them
> done has not filtered into the people who are being asked to do those kinds of

things. I mean it's a simple business organizational strategy type of stuff.

[Interview #2, card #124 of 152]

Dr. Wells also made a similar point when she spoke of the push in her college to practice academic capitalism via distance education (i.e., by developing an online master's program in public health):

So on one level, I think it is the result of thinking like a business, we're identifying a market and saying "well we should be able to compete in this market." But the thing is faculty are not business people. We have none of those skills. We're doing well if we have reasonable social skills, much less business skills. There are reasons why academics have the reputations that they do. They're not ... there are reasons there are stereotypes. So I don't know. [Interview #5, card #92 of 158]

Thus, the implication for faculty is that those entering the professoriate at research universities may not be prepared to carry out the role of, in essence, a successful entrepreneur. Furthermore, research universities may lack the infrastructure to help them become successful entrepreneurs. I will share again Dr. Baker's comment regarding this point:

The really ironic thing is that we have all this knowledge on this campus but it's all going into publications rather than improving how we ourselves are doing things and training our students to do things more efficiently and more effectively and more flexibly in terms of chasing where the pots of money appear and disappear and reappear. [Interview #2, card #125 of 152]

And, because tenure and promotion seem to be tied so closely with the ability to garner external research funds, those interested in joining the professoriate at research universities would need to be aware of this requirement to be, in essence, successful entrepreneurs. Furthermore, as Dr. Baker suggests above, the entrepreneurial faculty who are successful should help to share and transfer their knowledge and expertise to other faculty who are less successful. In fact, doctoral students, especially those interested in joining the professoriate, would also benefit to learn "… to do things more efficiently and more effectively and more flexibly in terms of chasing where the pots of money appear and disappear and reappear" [Interview #2, card #125 of 152].

Implications for Research Universities

At least in the near future, the practice of academic capitalism at research universities appears to be a phenomenon in which the institutions will continue to participate. In addition, teaching using educational technology seems to be another phenomenon that faculty at research universities will engage in, either to reach distance students, and thus, carry out another form of academic capitalism, or to supplement how they teach their residential students because of the personal rewards realized. The implication to research universities, then, seems to be the need to develop the human capital, the faculty, who are involved in obtaining external research funds and teaching using educational technology as well as develop the leadership who support the faculty by helping to build up the necessary infrastructure to carry out *both* phenomena effectively. The human capital theory upholds that performance gain can be achieved by investing in the human capital through education and training (Becker, 1992; Sweetland,

1996; Schultz, 1961; Torraco, 2001). Exactly how faculty and administrators can be developed through education and training in entrepreneurship or academic capitalism and teaching using educational technology seems to be a subject of future research and implications to HRD.

Another implication for research universities concerning academic capitalism appears to be how the universities will establish, as part of its faculty evaluation systems, the minimum and acceptable amount of external funds faculty are to garner. For example, for Dr. Baker, the expectations are that she brings in "triple digit grants … like hundreds of thousands of dollars" [Interview #2, card #104 of 152]. For Dr. Caldwell, the requirements are as follows:

> … the dean in our college has said that in the next two years we are going to be weaned off of much of any support from them and if our research brings in less than 25% overhead, we don't get any of that return. The dean sweeps it all. So people in our research department have to get grants that have over 25% overhead in order for any of that overhead to come back to the department to help defray cost to the department. [Interview #3, cards #2-3 of 165]

Still, participants such as Drs. Wells and Reeves were expected to generate 25% of their salary through external research funds. Presently, the minimum amount appears to be set departmentally or even at the college level. Because some fields—for example, genetics and molecular biology (Geiger, 2004)—are more in demand in the arena of academic capitalism while others such as humanities and most fields in social sciences are not (Slaughter & Leslie, 1997), faculty of all fields—as multiple stakeholders—ought to be

involved when their respective departments, colleges, or universities establish that

minimum amount.

Implications for HRD

One objective of HRD is to increase the effectiveness of individuals, work

groups, work processes, and organizations by developing the human expertise that help

meet the mission and goals of an organization, whether the organization is a corporation,

educational institution, military group, church, family, community, nation, or world

(Cho & McLean, 2004; Lynham & Cunningham, 2006; McLean, 2004; Swanson &

Holton, 2001). In the context of this study, the individuals are faculty and administrators

and the organization is the research university. Based on an issue of an Academy of

Human Resource Development journal—*Advances in Human Resource Development,

7*(3)—that was dedicated to organization development in higher education, the practices

of HRD are apparently being carried out in higher education. The findings and

conclusions of this study suggest that HRD practices and approaches indeed can benefit

the faculty, administrators, and research university in meeting the dual demands of

academic capitalism and teaching using educational technology. Therefore, in terms of

Watkins' (2001) HRD philosophical metaphors, HRD can serve as organizational

problem solver, developer of human capital, and organizational change

agent/interventionist or helper.

HRD as Organizational Problem Solver

In the capacity of HRD as organizational problem solver, HRD practitioners need

to be among those involved in assessing and solving the conflicts that exist between the

faculty and administrators as well as other stakeholders (e.g., the legislature) over the

utilities in teaching using educational technology. The source of the conflicts appears to

be the mismatched rationales or motivations and the subsequent outcome expectations of

the multiple stakeholders regarding teaching using educational technology. While

faculty members appear to be motivated to teach using technology because of the

personal satisfaction experienced, the administrators may be motivated by the possible

extra revenue gain from student tuitions and distance education fees. Clearly the research

university possesses multiple stakeholders and the mismatched rationales/motivations

and resulting outcome expectations may be a consequence of *not* taking into

consideration the needs of the different stakeholders. The initial steps would seem to

include taking on a systems perspective, identifying who the multiple stakeholders are,

and eliciting each stakeholder's needs and concerns. In essence, HRD as organizational

problem solver appears to require carrying out an organization development process.

HRD as Developer of Human Capital

The findings of this study suggest faculty may require development to become

successful grant awardees and teachers who effectively use educational technology in

terms of both the skills in using the technology and the pedagogy of teaching using

educational technology. In the capacity of HRD as developer of human capital, HRD

practitioners should facilitate the needs assessment and can carry out the programs that

address the faculty development needs.

The findings also suggest a need for administrator leadership development, such

as in developing their systems perspective, in recognizing that faculty typically do not

possess the knowledge to become successful entrepreneurs or grant awardees, and in appreciating the resources necessary for, and the processes used in, teaching using educational technology or implementing distance education. Again, HRD practitioners should facilitate the needs assessment and be involved in designing the programs that address the administrator development.

HRD as Organizational Change Agent/Interventionist or Helper

The previous two roles of HRD—as organizational problem solver and developer of human capital—perhaps are subsets of a bigger and fundamental role HRD would need to serve in research universities: HRD as organizational change agent. That is, the previous two roles would be a part of the research university's efforts to experience organizational change through learning about the development needs of its human capitals as well as to take on the systems perspective of multiple stakeholders.

Manuscripts Planned for Submissions to Peer-reviewed Journals

Publishing the results of my research study could be considered a technique to satisfy the educative, catalytic, and tactical authenticities. If published, my findings may serve as a vehicle for social change or action either by institutions or by faculty. Toward this end, I plan to prepare and submit three manuscripts to peer-reviewed journals. One manuscript will focus on the implications of my study and findings for HRD, in particular, HRD's role in organizational problem solver, faculty and leadership development, and facilitating organization development through organizational change. A targeted journal is the *Human Resources Development Quarterly*.

A second manuscript will address the educational technology community with the goal of informing both the scholars and practitioners the organizational forces resulting from academic capitalism (e.g., promotion and tenure criteria at research universities) that impede faculty adoption and implementation of educational technology into their teaching practices. I believe that the field of educational technology places much emphasis on instructional design and development—both critical in creating effective educational materials—and less on the implementation and institutionalization of the created materials or other educational tools (Demps, in press). Conducting this research study has helped me to understand the faculty dilemma in implementing and institutionalizing educational technology into their teaching repertoire and I plan to share the relevant findings. A targeted journal is *Educational Technology Research and Development*.

A third manuscript will be intended for the higher education community and will be written to share the experiences of my study participants. Perhaps the readers who find the narratives applicable and relevant may begin a dialogue, within and across institutions, aimed at bringing about organizational change in research universities in terms of the infrastructural support necessary for faculty success in teaching using educational technology and academic capitalism. A journal to target will be identified with the help of my dissertation committee co-chairs and members.

Recommendations for Future Research

Based on the findings, conclusions, and implications of this study, three recommendations for future research seem appropriate. First, further research seems

necessary on the role of turnover intentions for faculty at research universities and their actual departure. While most of the study participants stated they had turnover intentions, no one had left either University A or B. Second, further research on what skills or expertise faculty require to become successful practitioners of academic capitalism seems to be necessary. While universities typically provide faculty development on grant writing and share information on the different funding agencies available, the skills the participants in my study stated they lacked seemed to be of a different nature. I repeat Dr. Wells' comment, because her comment seems to suggest a need for transformational learning:

> But the thing is faculty are not business people. We have none of those skills. We're doing well if we have reasonable social skills, much less business skills. There are reasons why academics have the reputations that they do. They're not ... there are reasons there are stereotypes. So I don't know. [Interview #5, card #92 of 158]

While I recognize her statement cannot be generalized to all faculty members, given the low success rate in being awarded external research funds and the close connection between that ability and the promotion and tenure criteria, further research seems necessary to understand the needs of faculty members in becoming successful awardees and how those needs can be met.

The third and final recommendation for future research for HRD—a field whose center is at the development of human expertise through learning—is exploring how HRD can be an integral part of coming to understand the faculty and organizational

needs, helping to address the needs, and disseminating what is learned through not only publications but also theories and models. For example, a conceptual model of the need for faculty and administrator knowledge and expertise development in the multiple perspectives—technology, pedagogy, and leadership support—of teaching using educational technology may be represented as shown in Figure 6 below.

Figure 6. Conceptual Model for Faculty and Administrator Development
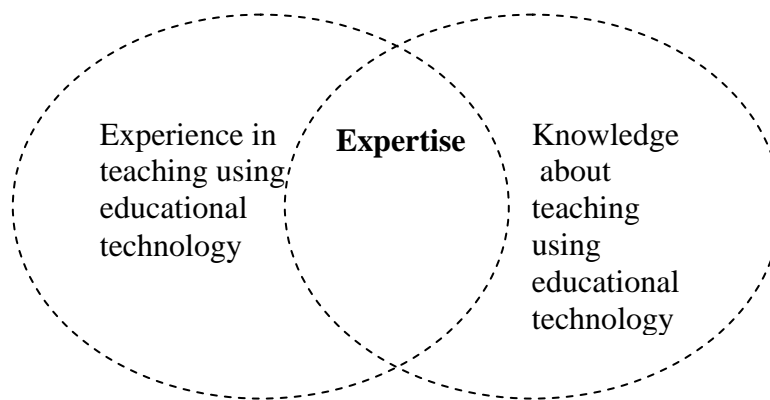
However, with HRD's focus on performance gain typically measured in economic terms of profit or loss, applying HRD at research universities may require a different performance outcome measure and inquiry frame.

Working Hypotheses

Based on the findings and conclusions, three working hypotheses began to emerge. These hypotheses are described below.

Hypothesis #1

When departments perceive educational technology as a vehicle to engage in academic capitalism, for example, by participating in distance education, and provide an infrastructural support such as in the four resources—physical, digital, human, and social—described by Warschauer (2002) as necessary in implementing technology for social inclusion, faculty who teach using educational technology are not burdened by the technological aspects because the department provides human resources who attend to those matters. Furthermore, besides experiencing a variety of personal rewards such as flexibility and convenience, these faculty are also able to focus on the *pedagogy* of teaching using educational technology, perhaps which is what teachers aspire to focus.

Hypothesis #2

When departments engage in teaching using educational technology for various reasons, such as to commodify education or reach remote students, but do not provide the necessary infrastructural support, faculty who are not facile with the technologies or pedagogies of teaching using educational technology are burdened by the need to overcome steep learning curves, technical problems, and pedagogical challenges. These faculty are burdened by the technological aspects but still engage in teaching using educational technology because the experience is personally rewarding.

Hypothesis #3

When departments engage in teaching using educational for various reasons, do not provide the necessary infrastructural support, but the faculty are facile with the technologies and/or pedagogies, they are not burdened by the technological aspects and find the experience personally rewarding.

The three working hypotheses are also displayed diagrammatically in Figure 7. That figure is on the following page.

Figure 7. Working Hypotheses

Department perceives educational technology as commodification of education?

Yes

No

Department provides strong infrastructural support for teaching using educational technology?

Yes

Department perceives educational technology as an opportunity to service distance learners?

Yes

No

No

Hypothesis #1
Faculty are not burdened by technological aspects, find teaching using educational technology personally rewarding, and are able to focus on the pedagogy of teaching using educational technology.

Faculty is burdened by teaching using educational technology?

Yes

No

Hypothesis #2
Faculty are burdened by technological aspects but find teaching using educational technology personally rewarding.

Hypothesis #3
Faculty are not burdened by technological aspects and find teaching using educational technology personally rewarding.

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APPENDIX A

STUDY PARTICIPANT RECRUITMENT FLYER

Seeking Dissertation Study Participants!

Dissertation Title

Understanding the Faculty Experience of Teaching Using Educational Technology at Public Research Universities in the Academic Capitalistic Era: An Interpretive Critical Inquiry

Study Purpose

To understand your experience as a faculty member at a public research university who teach using educational technology and your perception of how the demands of two apparently conflicting requirements of attending to academic capitalism (i.e., pressure to obtain external grant funding to conduct research) and teaching using educational technology affect your job satisfaction as a professor. Based on the findings, I hope to offer suggestions and recommendations for policy change that will serve to alleviate the conflicts faculty may experience.

Type of Research

Qualitative; data will be collected from each participant through —
1) 1 or 2 interviews that last at most 1.5 hours each,
2) 1 to 3 classroom observations,
3) review of any relevant documents (e.g., course syllabi), and
4) review of online course components (if applicable).

Data Collection Period

April and May 2007 (currently waiting for IRB approval)

Dissertation Committee Members

Dr. Susan Lynham (co-chair)
Dr. Yvonna Lincoln (co-chair)
Dr. Kim Dooley
Dr. Lauren Cifuentes

Compensation/Confidentiality

No compensation; confidentiality will be ensured through the use of pseudonyms.

If You're Interested …

Please contact the principal investigator, Elaine Demps at demps@tamu.edu
Elaine Demps is a doctoral student from the educational human resource development program at the College of Education and Human Development.

APPENDIX B

INTERVIEW PROTOCOL

Interview Protocol

Preliminary Interactions/Questions
- Do greetings
- Give ethnographic explanations
    - Explain project
    - Explain key terms (e.g., academic capitalism, educational technology, job satisfaction)
    - Explain recordings and observations to be done
    - Explain interview
- Ask rapport-building questions
    1) Where are you from?
    2) Where did you do your studies?
    3) How long have you taught at this university?
    4) Have you taught somewhere else before this university?
    5) What is your title or academic rank?

Main Questions

To address research question #1: *What is the experience of faculty who teach using educational technology in public research extensive universities?*
1) Please describe how you personally use educational technology to teach. (descriptive)
2) What technologies do you use? (structural)
3) What are the views on teaching using educational technology in your department? (structural)
4) What is the experience like? (descriptive)
5) What are some barriers and/or challenges? (structural)
6) What are some positive experiences that serve as a rationale to teach using educational technology? (structural)

To address research question #2: *How is the experience affecting them as more demands are placed on faculty to obtain external research funds?*
7) How important is it for faculty members in your department to be conducting research? (structural)
8) Please describe how you obtain funding to conduct research. (descriptive)
9) What expectations are placed on you regarding obtaining external research funds and what are your thoughts on these expectations? (structural)
10) Between the two efforts, obtaining external research funds and teaching using educational technology, which is rewarded or recognized more by your peers or department chair? (contrast)
11) How do you split your efforts between obtaining external research funds and teaching using educational technology? Is there a conflict? (structural)

To address research question #3: *How is the experience affecting their job satisfaction?*

12) Please describe your job satisfaction. (descriptive)
13) How is your job satisfaction affected by your efforts to teach using educational technology and obtain external research funds? (structural)
14) Have you thought about leaving this institution for another institution or leaving the professoriate altogether? If you have, why? (structural)

Wrap-up Questions (Structural)

15) What are some other questions I should ask to better understand the barriers and/or challenges you face in trying to teach using educational technology?
16) What are some other questions I should ask to better understand the expectations placed on you to obtain external research funds and how these expectations affect your efforts to teach using educational technology?
17) What are some other questions I should ask to better understand your job satisfaction as a professor?

APPENDIX C

SAMPLE UNITIZED CARD

367
368   What I do is I post quizzes and they're multiple choice and fill-in-the-
369   blanks, true and false, and I time them, in a relatively short time
370   because I know the open book issue versus plagiarizing and I thought
371   I might as well just make it open book but make the time short enough
372   where it presumes that they already know most of the material and if
373   they have to look it up, it's a learning experience to get through it.
374

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