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Doing "What Works": A Substantive Grounded Theory of Teacher Perceptions and Uses of Technology in a Korean University General English Department

A dissertation submitted in fulfillment of the requirements for the degree of

Doctor of Philosophy

Thomas E. Webster

BFA, MFA, MEd

Principal Supervisor: Associate Professor Jeong-Bae Son

Associate Supervisor: Professor Patrick Danaher

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"To maintain the state of doubt and to carry on systematic and protracted inquiry – these are the essentials of thinking." (Dewey, 1910, p. 13)

Foreword

This dissertation attempts to be first and foremost readable for researchers and teachers alike. The research and insights of various scholars, therefore, are called upon to support or dispute specifics throughout the account when and as needed (rather than be restricted to one separate chapter).

In the interest of objectivity, it is important that a set of principles be established at the onset which clearly frames the author's motivations and intentions. The first of these is a general pro-technology bias. It is a fact that technology has made significant inroads into education and is not showing any signs of diminishing in the future. The choice, then, as the author sees it, is not *if* teachers should use technology, but *how* or *in what way*. Second, this study is a qualitative case study that is structured to be as credible and trustworthy as possible, but its methods are designed to discover a theory, not verify or dispute the results of other theories. For instance, the use of a survey questionnaire (along with interviews and observations) help provide a degree of triangulation; however, its main purpose is to help define and clarify properties that have emerged during the preceding interviews rather than check the consistency or reliability of previously discovered facts. Consequently, quantitative calculations are kept to a minimum and, as with to the literature review in this dissertation, used only on an as-needed basis to help underpin or illustrate the results (Dunne, 2011). Third, every attempt has been made to detail the processes involved during each step of the study to allow readers to follow the course of the reporting and determine the motives and justification therein. Finally, it is expected that particular aspects of this dissertation's findings may need to be modified not only by other researchers, but also by the author in future studies – this should not be seen as a flaw but as an essential part of the process in the development of theory. A large part of the motivation to explore this topic comes from the need to learn something about which there is very little known. Research, like life, is indeed a process of humble beginnings and multiple revisions. It is hoped that this dissertation is both informative and concise.

Abstract

The purpose of this dissertation is to investigate what teachers experience as they considered the use of technology in their Korean university English classes. It was a qualitative study which attempted to provide a grounded explanation of the complexities that led teachers to begin adopting technology in their teaching or, in some cases, to reject it outright. This case study involved the general English program of a major women's university in Seoul, Republic of Korea (where the researcher currently works as a faculty member).

This study assumes the perspectives of teachers and viewed the complicated decision and implementation process through their thoughts and actions. It was believed that only through the perspectives of teachers could the messy business of implementation be properly understood and explained. A grounded theory of investigation therefore underpinned a mixed-techniques approach. The impetus for this method was reached after a close reading of diffusion of innovations theory by Everett Rogers (2003) and therefore similarities to and differences from this theory are likewise considered where appropriate and in conclusion.

Data for the study were collected through three main techniques: semi-structured interviews, a survey questionnaire, and classroom observations. An iterative, grounded method of analysis was used for all three techniques, aided by the application of both qualitative and quantitative software programs (Atlas.ti 5.0 and SPSS 16.0 respectively). The study first employed thirteen semi-structured interviews to identify phenomena and concepts which were further explored in a subsequent survey questionnaire (along with some aspects of Rogers' [2003] theory), which was administered to all full-time and part-time instructors (16 and 34 respectively) in the General English Department at Park University (a pseudonym). Information from both sources helped to select theoretically a set of five teachers to participate in classroom observations and follow-up interviews to explore developing categories and their properties, aspects, and dimensions. Furthermore, teachers participating in all four strands of the study were consulted throughout the research in order to clarify and/or verify concepts and perceptions.

Results from the study are organized under a substantive theory entitled "what works". This expression is not to be confused with the term as associated with evidenced-based research (EBR), although certain similarities can be found. This theory of "what works" explains the complex interactions that transpire both in and out of the classroom as teachers attempt to balance adaptation to changes with personal and administrative goals. Concepts of roles and responsibilities as well as self-efficacy, image, satisfaction, and sociability all interweave to reinforce "teacher psychodynamics" which formed the basis for decision making. It was found that within this system teachers' professional uses of technology were influenced by personality factors, previous learning experiences, teaching beliefs, and beliefs about technology. However, the decision to use any resource (technological or otherwise) was found to be dependent on what worked. Teachers were interested (to varying degrees) in ideas about the benefits of technology; however, in the final analysis, they employed it only if it consistently worked for them in the classroom. As one teacher explained, "As a teacher, you're never done…so you can only do what works". A final element in this process was the willingness or aptitude of teachers as lifelong learners given that teaching with technology involves continuous renewal and adaptation.

Further implications indicate a general disconnect between contemporary educational practices and the learning needs of a majority of students. It is posited that the use of technology in education exacerbates this disconnect, leading to inconsistencies in application and a limitation of potential benefits both for technology and for education in general. Final recommendations suggest the need for debate on the reconciliation between longstanding educational beliefs and practices and the current and future needs of students.

Certification of Dissertation

I certify that the ideas, experimental work, results, analyses, software, and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged. The methods and techniques employed in this study met the approval of the University of Southern Queensland's Ethics Committee for investigations involving human research.

Signature of Candidate: _____ Date: _____

Endorsement

Signature of Principal Supervisor: _____ Date: _____

Signature of Associate Supervisor: _____ Date: _____

Acknowledgements and Dedication

I would first like to gratefully acknowledge the efforts of both of my supervisors, Associate Professor Jeong-Bae Son and Professor Patrick Danaher. Their patience and open-mindedness allowed me the freedom to follow my own path throughout this study and dissertation. Thank you both for your trust as well as sensible guidance when needed. I would furthermore like to thank Cristy Bartlett in the Faculty of Education and the staff in the Office of Research and Higher Degrees at the University of Southern Queensland for their hard work and assistance.

I would also like to thank my wonderful wife, Dohyoung Oh, for enduring the last five years with a husband who could generously be described as "distracted". I could never have completed this dissertation without your love, moral support, and fresh fruit. Many thanks as well to my son, Barrett Oh Webster, born on January 18, 2010, for being such an easy-going baby during the final stages of the write-up.

I would further like to thank my colleagues who took part in the study. I enjoyed learning about your lives and teaching and hope that I was able to represent them both fairly and accurately. I would also like to thank my friend, Dr. Bruce Barnes, for our many conversations on research and our days spent together with the Scorpion Hike and Bike Club. Finally, I would like to thank my close friend, Greg Skwarok, for being a faithful and uncomplaining brother for over 13 years. Your moral support has helped me in too many ways to mention.

This dissertation is dedicated to my mother, the late Ruth A. Webster, who passed away on May 2, 2010 after a long and fruitful 88 years of life. Her energy and passion for life are reflected in my own humble attempts to better myself and the world around me including this dissertation. The world is not the same without our Ruthie.

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Acronyms and Key Terms

CELTA	Certification in English Language Teaching to Adults
DELTA	Diploma in English Language Teaching to Adults
ESL	English as a Second Language
EPIK	English Program in Korea
FEFC	Further Education Funding Council
GDP	Gross domestic product
*ICT	Information and Communications Technology
KCE	Korean Committee on Education
KORETTA	Korean English Teacher Training
KOTESOL	Korean Teachers of English to Speakers of Other Languages
LCD	Liquid Crystal Display projector
MOE and HRD	Ministry of Education and Human Resources Development
MEST	Ministry of Education, Science, and Technology
NCEP	National Committee on Education
POI	Post-Observation Interview
SSI	Semi-Structured Interview
TIT	Technology in Teaching Survey Questionnaire
Technology	Any electronic device such as computers and their supporting peripherals
TOEIC	Test of English for International Communication
UNHDR	United Nations Human Development Report

*The term "ICT" is used throughout the dissertation as it is considered a more general term that encompasses other more specific areas such as Computer-Assisted Instruction (CAI), Computer-Assisted Language Learning (CALL), and Content-Based Language Teaching Through Technology (COBALLT).

Chapter One: Structure and Overview of the Dissertation

1.1 Introduction

The purpose of this dissertation is to explore what teachers experienced as they considered the use of technology in their Korean university English classes. It was an attempt to provide insights into what Zhao, Pugh, Sheldon and Byers (2002) called "the messy process of classroom technology implementation" (p. 1). A qualitative method was used throughout as a basis for clearly illustrating the perspective of teachers. Over the course of this dissertation, the researcher attempts to guide readers through his investigation as it transpired in order to provide a reasonable basis for situating and explicating the substantive theory which emerged. Tables and appendices are used liberally to offer additional details in various areas that would otherwise clutter the dissertation and hinder readability.

Chapter One lays out the impetus and structure of the dissertation, beginning with the significance of the study. Research aims and questions are then presented, followed by an overview of the dissertation through short summaries of the chapters. The chapter concludes with a brief background to the general ethical issues involved in this study and a chapter summary.

1.2 Significance of the Study

It is expected that this study will provide a corpus of information to educators in their attempts to understand and integrate technology in classrooms in the Republic of Korea. Through the descriptions of the patterns and relationships that relate to all tertiary English teachers, it is hoped that overall practice will be significantly informed. Expressly, the development of a substantive theory with practical implications based on authentic data garnered through a grounded theory methodology will help promote the effective use of technology in English programs in Korea. It is hoped that both teachers – through insights into more efficiency in teaching – and students –

through teacher use of more media rich and authentic materials – will benefit from this study. Moreover, it is hoped that studies such as this will provide the foundation for a move toward more student-centered or constructivist teaching methods in Korea, where currently, and in keeping with Cuban, Kirkpatrick and Peck's (2001) observation in Californian high-tech high schools 10 years ago, "Few fundamental changes in the dominant mode of teacher-centered instruction [have] occurred" (p. 825). Likewise, a contribution to the current literature on Rogers' (2003) diffusion of innovations theory as well as grounded theory application is made.

1.3 Research Aims and Questions

This study sought to identify and analyze the perceptions and behaviors of tertiary English teachers in Korea as they encountered various technologies in their practice. As a qualitative study, it was open to various aspects that inform and affect English teaching, including infrastructure, pedagogical beliefs, predispositions to technology, and work ethics. Background information garnered through semi-structured interviews also helped situate the study. The key aims and research questions which initially directed the study are listed below.

The key aims of the study were:

- To provide background surrounding the perceptions of tertiary English teachers in general English programs in Korea;
- To identify the main hindrances to the integration of technology in their classrooms;
- To link findings with Rogers' (2003) diffusion of innovations theory;
- To reveal insights into English teaching methodology and practices as they apply to the use of technology in tertiary language programs.

The following questions helped focus the organization of the study and formed the basis of data collection and analysis:

1. What relationships exist among teacher background, beliefs, setting, and classroom practices?

2. What are the main hindrances to technology integration in the classroom?
3. To what extent can Rogers' (2003) diffusion of innovations theory explain these relationships and hindrances?

1.4 General Ethical Considerations

Ethical practice in qualitative research such as this requires first and foremost a strong moral position and a dedication to maintaining the rights and privacy of all participants (including the researcher). The overriding method to ensure the protection of participants, physically, psychologically and socially, involves the negotiation of all representations between the researcher and the participants. As a practitioner who has for many years been aware of the setting, background and needs of the participants, the researcher was in a unique position to ensure the fair treatment and valid representation of the participants. Constant feedback and quick, easy access to the researcher have allowed the participants to express any concerns that they may have had during the study. Officially, ethical clearance was sought and granted by the University of Southern Queensland Ethics Committee. Moreover, permission letters which made clear the objectives and procedures of the study including the importance and necessity of confidentiality in all areas of the research were signed and submitted by all participants (including the department director).

It was also the researcher's firm belief that the participants in any research should be empowered along with the researcher as they had an equal interest and stake in the outcome. This idea is consistent with the work of Holzkamp (1983), who "elaborated in the seminal 'Foundation of Psychology'....that people should never be made the objects of research, only its agent-subjects" (p. 190).

1.5 Overview of the Dissertation

Chapter One began with establishing the significance of the study and then provided the study aims and questions.

Chapter Two details the background of the study including information about the researcher and the setting. Key philosophical influences including Piaget, Vygotsky, and Dewey are listed as part of the constructivist background of the researcher. Additionally, features of the researcher's teaching as a practitioner establish the basis of and preference for practical concerns. The second half of the chapter provides background on the Korean setting, including a brief history of higher education, English in higher education, and ICT in higher education. The chapter concludes with a prelude to the emergence of the problem.

Chapter Three reports on the course of research conducted into the problem of why teachers often decide not to use technology in their teaching. A theoretical and practical view of teacher decision making is given before the barriers to and the enablers of technology use in the literature are outlined. An overview of different diffusion theories is then presented, followed by a closer look at Rogers' (2003) diffusion of innovations theory. The chapter concludes with a view of case studies and the basic tenets of grounded theory as the methodology employed in this study.

Chapter Four details the main precepts and techniques of Rogers' (2003) theory which informed the design of the current study. Grounded theory is then likewise considered with an overview of coding procedures and theory formation. A brief look at the debate between Glaser (1992) and Strauss and Corbin's (1998) later versions of grounded theory is followed by an argument for the justification of combining Rogers' diffusion of innovations theory with grounded theory methodology.

Chapter Five reviews the decision making process involved in selecting and designing the specific framework and data collection techniques employed. Aspects of the semi-structured interviews, survey questionnaire construction, observation procedures, and post-observation

interviews employed are then given. Finally, the data management process is looked at with an eye toward the use of technology by the researcher.

Chapter Six lists the analysis techniques and findings as they emerged from each strand of the process in the study. Conceptual categories are explained as they developed along with decisions on theoretical sampling and the use of additional participants. The chapter concludes with a description of the formulation of the central category.

Chapter Seven unpacks the first two background domains in the substantive theory entitled "what works". These two domains encompass the internal ("teacher psychodynamics") and external ("A and I/student variables/teaching community) factors which underpin teachers' decision making including the possible use of technology.

Chapter Eight presents the results of the final domain in the theory. Eight categories which emerged are considered through the processes they entailed. Properties, aspects, and dimensions are compared for each category which helped to provide insights into teachers' decision making including the deliberation on the use of technology both in and out of the classroom.

Chapter Nine views the substantive theory of "what works" through the perspective of each participant who took part in the classroom observations and follow-up interviews (in addition to completing the survey questionnaire). Theoretically selected participants' cases are explored in order to expand and explore the range of properties and aspects that emerged from the initial interviews. Finally, an epilogue for each participant is given to update changes during the study along with a summary of overall conclusions.

Chapter Ten brings closure to the study by assessing the results of the findings with regard to the research questions. Rogers' (2003) diffusion of innovations theory is then revisited in order to make comparisons among major findings which link to significant aspects of the theory. Elements related to the applicability and explanatory power of Rogers' theory for the current study are discussed. Three relevant dissertations are then considered. Next, overall conclusions are summarized along with limitations observed. General implications of the major findings are then explored. Finally, unanswered questions which could serve as starting points for future studies are listed to complete this chapter and the dissertation.

1.6 Summary

Chapter One began by providing an outline of the significance of this study as involving two main areas of improvement: the promotion of the effective use of technology as well as the advancement of student-centered pedagogies in Korean university English programs. Incidental insights into both Rogers' (2003) diffusion of innovations theory and grounded theory were then suggested. Next, the study aims and questions were explicated. Specifically, the study sought to provide background into the perceptions of teachers in a tertiary English program in Korea as a basis to identify the main hindrances to the integration of technology in the classroom. It was also hoped that insights into the methodology and techniques of teachers as practiced in the classroom would further uncover teachers' thoughts about technology use. These helped to establish a qualitative framework that would take the perspective of teachers in order to discern the motives and decisions they make in the classroom. Specific questions which helped organize the research included how teacher background and setting affected their teaching; what factors hindered their technology use; and how well the findings from this research matched with Rogers' diffusion of innovations theory. General ethical considerations were then briefly outlined in the hope of emphasizing the fundamental importance of this issue to the researcher. Finally, an overview of the dissertation was provided with a listing of the contents of each chapter.

Chapter Two: The Researcher and the Setting

2.1 Introduction

This chapter begins with my background both as a researcher and as a teacher and touches on selected ideas from authors whose opinions have informed the conceptual underpinnings of this study. The second half of the chapter deals with the setting of higher education in the Republic of Korea, English teaching in higher education, and ICT in higher education. It concludes with a presentation of the initial study aims and questions followed by a prelude to the emergence of the problem of technology integration in this setting. Finally, a summary of the chapter is given.

By the presentation of the researcher's background at the onset of this dissertation, it is hoped that the importance of making explicit the role and relationship of the researcher to the topic under investigation will be evident. Acknowledging one's biases and assumptions not only leads to a more honest and balanced representation but also to a more reliable and credible one as well.

2.2 The Researcher: Experience and Ontological/Epistemological Underpinnings

My professional career as an English as a Second Language (ESL) teacher is similar to many English-speaking expatriates teaching extensively in Korea – my first experiences were at a language institute, followed by years of teaching at various public and private universities. More specifically, as of 2011, I have taught for over 16 years at one institute and three universities. Throughout my university experience, I have been a contracted ESL teacher in the general English programs of these universities, teaching between 12 and 18 hours a week during each of the two 15-16 week semesters a year. Also during this time I have studied English language teaching methods and photography, and earned masters' degrees in education and fine arts. I have been a member of professional organizations such as the Korean Teachers of English to Speakers of Other Languages (KOTESOL), where I have given presentations during annual

conferences. Finally, as part of my more recent doctoral studies, I have conducted a research and development project with a colleague I met online (and subsequent friend) in Japan which involved the use of an online supplementary website with classes at the researcher's university in Seoul.

The preceding paragraph should help provide the basis for my research perspective as a practitioner/researcher who is primarily interested in improving English teaching methods and techniques. Most of the motivation I have had to study second language learning derives from my experiences as a classroom teacher in Korea. Through these experiences, I have come to form a strong connection with various educators and researchers who have taken knowledge and learning to be a constructed process in a situated experience. The ideas of philosophers such as Piaget, Vygotsky, Dewey and others have come to shape my ontological and epistemological perspectives so profoundly that it seems necessary to outline briefly some of their ideas below.

2.2.1 Piaget and Vygotsky's Influence: Constructivism

What is knowledge and how is it learned? Notwithstanding the debate between Piaget and Chomsky over the separation and origination of linguistic knowledge from other forms of knowledge (Piatelli-Palmarini, 1980), most modern language researchers have taken the view that how we learn about the world is a complex process that includes both our own unique characteristics and extensive influence from the world around us (Brown, 2000; Ellis, 1994). Views and/or paradigms within this understanding are ways of framing the problem, but do not discount the complex and vital relationship between individuals and their environments. Piaget's view, for instance, stressed a biological timeline, whereby individuals were open to certain kinds of development only as they progressed in their understanding (Brown, 2000; Piaget, 2002). Vygotsky, on the other hand, emphasized the social side of this process, believing that the idea of biological stages of readiness for learning was an artificial framework that served more to isolate understanding in the area than to illuminate the dynamic (Roth & Lee, Y. 2007; Vygotsky, 1978). As an aside, it is interesting to compare their debate with that between the tenets of capitalism and communism, both in the ideal and in the practical senses. Piaget's focus on individual effort seems to mirror a capitalistic view, while Vygotsky's focus on the community

of learning supports a more communistic perspective. On the issue of knowledge and learning, however, both Piaget and Vygotsky espoused a view that knowledge is a construction that shatters the idea of a single, knowable reality into a multifaceted concept of multiple realities. Each person's view of reality, then, is a unique perspective that has consequences which affect both her or his view of the world around her or him and others' views of it as well. One's education in life, then, becomes a unique construction based on experience and perception.

2.2.2 Dewey: Learning as a Continual Process

John Dewey did not believe that experience and education were synonymous. He stressed that education relies on experience, however, he believed that many experiences were "mis-educative" because they had "the effect of arresting or distorting the growth of further experience" (Dewey, 1938, p. 25). For him, the basis of education was a two-part equation: the interaction of the learner with an environment. This situation is educative if it contributes to further learning and is not a means in itself such as rote learning of abstract facts. Dewey believed that much of what was referred to in the early 1900s as "traditional education" consisted of this kind of rote learning which failed to consider the individual learner's needs; however, he was also equally wary of the "progressive school" which placed too great an emphasis on the individual (Dewey, 1910, 1938). In his view, "new education" should consider the internal conditions of the learner equally with the objective situation as a continual learning process that is "in harmony with principles of growth" (Dewey, 1938, p. 30). Further, it seems both intuitive and logical that, rather than the accumulation of spelling, geography or historical facts, the "formation of enduring attitudes…are fundamentally what count in the future" (Dewey, 1938, p. 48). Dewey even goes as far as to question the value of learning to read and write if in the process the student loses the ability to appreciate worthwhile things, or in the extreme even loses his or her soul. I share Dewey's assessment that the most important lessons in life are "mutual accommodation and adaptation" (Dewey, 1938, p. 60).

Though Dewey wrote over 70 years ago, many of his observations and insights still ring true today. In fact, a lot of what he had to say on the subject of change in education offers a unique perspective into how contemporary teachers make decisions about the resources and technology

they use and the methods they employ. For this reason, I return to Dewey again later in Section 10.7 on the implications of relevant learning and technology in education.

This concludes information about the researcher which will help to evaluate judgments made throughout the remaining dissertation. Information on higher education in Korea, including English language learning and official government policies and reforms on the use of ICT, is provided below as additional background to the study.

2.3 A Brief History of Higher Education in Korea

Korean educational history is as complicated as Korean society and higher education is no exception. Though the foundation of higher education rests on a long history of Confucian principles of cultural training for gentlemen, since the late 19th century, the more liberal views of western educational philosophy have been infused mainly through Christian missionaries (Lee, J., 2000, 2001, 2006). These opposing forces are significant as many of the seemingly inexplicable aspects and contradictions of universities in Korea find their causes in these roots (Bryant & Son, J.H., 2001). To illustrate, Jeong-Kyu Lee (2001) states that "Confucianism has contributed to the planning of organizational structure and culture, whereas Christianity has contributed to the planning of instructional curricula and administrative systems" (p. 72). Furthermore, from 1910 to 1945, Japan colonized Korea and mandated many changes to Korean education, including a ban on the Korean language and the devaluation of Confucian principles.

At the end of World War II, the United States military government occupation (1945 to 1948) established the Bureau of Education under the directorship of a military captain. This led to the American-Korean Partnership System which became the Department of Education on March 29, 1946, with two influential advisory committees: the Korean Committee on Education (KCE) and the National Committee on Education (NCEP). These committees "played a crucial role" (Kim, E., 2009, p. 5) in the development of Korean higher education. Under Japanese rule, 19 tertiary "professional schools" and only one university – Gyeongseon (Keijo) Imperial University (which would later become South Korea's premier Seoul National University) – were in operation by the

end of the war. The end of the Japanese imposed two-tier educational philosophy which sought to "train some to lead and others to be qualified to follow" (p. 8) also saw the end of the ban on the Korean language in education which had been imposed for close to a decade (Kim, E., 2009). Some further statistics which help to highlight this dramatic period include that in 1945, more than 75 percent of secondary teachers were Japanese; the first co-educational school (Yonhi – later to become Yonsei University) opened in September 1946; and the illiteracy rate improved from 78 to 42 per cent by the summer of 1948 (Kim, E., 2009). This last fact is particularly important as it illustrates the effects of the education craze that was evident during this period as access to education, and higher education in particular, was expanded for the first time beyond pro-Japanese and upper-class Koreans (*Yangban*s). Jeong-Kyu Lee (2006) concurs:

> From the perspective of Korean cultural history, the contemporary educational fever of the Korean people is determined by two significant factors: the accessibility of higher education which changed a privileged minority into all the classes according to the change of political, economic, and social circumstances; in addition, the potential desire of education was erupted toward r[a]ising a social-economic condition and getting a successful career (p. 5)

By the 1960s, the industrialization and economic boom during the rule of President Jeong-Hee Park relied on a direct vocational link with higher education to supply its factories and offices. Higher education at this point had come full circle from its roots as a literary-based cultural enrichment for the upper-class elites; it was now seen by the government as "a prime motivator for the extension of national power as well as for the promotion of national industrialization" (Lee, J., 2006, p. 2). This emphasis on quantity over quality in education helped boost the Korean literacy rate nationwide to an amazing 98% by 2003 (which was significantly higher than other developing nations and even some advanced nations, including the United States and Great Britain) (UNDR, 2003). However, it was not until the mid 1980s that tertiary education in Korea began to expand rapidly through significant attention and funding by the Ministry of Education (owing to an initial focus on primary and secondary education). The number of policies about and reforms to higher education instituted by the government from the 1980s to the present is staggering, leading one university president to comment: "Indeed, the list of reforms is so long, and the reforms are so controversial, that some university educators are dubbing them NAPO –

No Action, Policy Only" (Brender, 2006a, para. 6). The two most consistent themes throughout the reforms have involved English education and the implementation of information and communications technology (ICT). These are therefore outlined below. For more information concerning policies and reforms in Korean higher education, J. Kim (2004), J. Lee (2001), MOE & HRD (2003, 2006), MEST (2009a, 2009b) and Mattison (2007) can be consulted. Additionally, an authoritative source of information on higher education in Korea can be found in: *Korean higher education: Its emergence, development & future challenges* (2006) by Sungho H. Lee, a former assistant minister of education, member of numerous advisory committees including the Presidential Commission for Education Reform and the Presidential Commission for the 21st Century, and Yonsei University professor.

2.4 A Brief History of Tertiary English Education in Korea

In 1883, during the Choson dynasty, the first English language institute as the first modern school in Seoul was established (Lee, J., 2001). In the period following (between 1885 and 1910), missionaries opened a total of 796 schools (or roughly 35% of the total number of schools at the time) from the elementary to the college levels, including the first modern colleges that are now recognized as the oldest and most prestigious universities in Korea: Kwanghyewon (which became Severance Union Medical College, then Yonhi, then Yonsei University), Baejae Hakdang (the first boys' school in the country), Ewha Hakdang (which became Ewha Womans University), and Sungil school (which would become Sungsil Union Christian College, then Sungsil University) (Lee, J., 2001; Lee, S., 2006). At around the same time, the government tried to reform "old educational systems into modern Western types" (see the *Kabo Reform*, 1894), but were not as successful as Christian missionaries who were planting the "seeds from which contemporary Korean higher education grew" (Lee, J., 2001, p. 69). English education went hand-in-hand with advances in higher education throughout this period, though ironically the colonization of Korea by Japan perhaps inadvertently hastened this progress. Owing to Japanese colonial policies such as forbidding any religious instruction or instruction in Korean as well as demanding students and teachers alike to pay homage to Shinto shrines, "It can be said that some Koreans chose to accept Western missionaries out of a common anti-Japanese

consciousness" (Lee, S., 2006, p. 265). Subsequently, far-reaching implications associated with the United States military occupation at the end of the war in 1945 began to take direct effect.

Thus did the seeds begin to sprout at the end of the war with the United States occupation and the ensuing increase in demand for English; as Eun-gyong Kim (2009) relates: "Needless to say, English language education too became U.S.-oriented and strengthened as an important part of Koreans' life under the American military rule and ongoing educational reform" (Para 23). The decades that followed, particularly the 1960s, saw a great expansion of higher education to meet the ever-growing industrial needs of the nation, and the quality of English education along with tertiary education in general suffered as a result (Lee, J., 2000). However, the focus on quantity also produced "the economic miracle", which in less than two generations lifted Korea from the bottom to the top in terms of the percentage of high school degrees awarded and helped it attain the highest rate of tertiary participation in the world by 2007 (Mattison, 2007; OECD, 2007). English education similarly saw steady increases in educational funding and importance for trade through the 1980s. By the 1990s, English language programs at Korean academic institutions intensified greatly. This was in large part due to governmental education reform policies (mentioned above) that stressed the importance of English for international communication and trade. Two government programs, English Program in Korea (EPIK) and Korean English Teacher Training (KORETTA), were initiated in 1995 to provide pre-university English exposure and training specifically in listening and speaking from native-speaker tutors (Kim, D. & Margolis, 2000). Widespread use of the Test of English for International Communication (TOEIC) for English level assessment (including university entrance exams and job interviews), along with the introduction of communicative English course requirements at universities, further emphasized the growing importance of English education in Korea.

In 2000, the seventh national curriculum in Korea was implemented and placed an emphasis on English proficiency for communication. Under the plan, students would begin learning English in the third grade using communicative language learning methods, which included an emphasis on speaking and listening, task- and process-based learning, and learner-centered differentiated instruction (MOE & HRD, 2006). As of 2005, the total budget for English education in Korea was over $73 million dollars (MOE & HRD, 2006). In 2006, the Ministry of Education then

proposed a further series of 10 reform projects designed to build upon and improve the seventh national curriculum measures. The emphases in these projects included plans to increase teacher training for Korean teachers of English as well as to expand the number of native English speakers employed in the Republic of Korea (MOE & HRD, 2006). Furthermore, plans to increase multimedia use including satellite broadcasting and Internet portal sites were also stressed in the reforms (MOE & HRD, 2006). The overall goal of these reforms was to have all teachers (including native and non-native speakers of English) conducting English lessons exclusively in English and made available to students of all economic levels throughout Korea using various available technologies (MOE & HRD, 2006).

Moreover, the rush to accommodate these newly required English language classes into the university curriculum led to a myriad of different infrastructure strategies and implementation decisions. Most programs began to recruit numerous native speakers of English to teach these courses and provided them with housing, basic teaching materials, and varying degrees of support. These irregularities among different programs were (and continue to be) in sharp contrast to other general educational policies being promoted by the Korean government at the time (Lee, J., 2006; Lee, S., 2006). Another factor which had a negative impact on the quality of English programs was the economic crisis caused by the Asian stock market crash in 1997. Educational budgets at the time were deeply cut, adversely affecting salaries, resources and faculty support, leading to further inconsistencies in English programs (Lassche, 2000; Lee, J., 2006; Lee, S., 2006).

To illustrate, consider the three Korean universities where the author has taught and the different views and structures they have had regarding English class requirements for students. The first university, perhaps like the majority in Korea, incorporated the native-English-teaching department into the on-campus foreign language education center (which, in addition, offered classes to students and the public at hourly rates). English requirements for all students were stand-alone conversation classes using non-professional textbooks written and produced on campus. A second university also taught conversation courses, however, with professional textbooks whose curriculum and contact hours did not match the needs or scheduling of the students. These conversation-based classes taught exclusively by native English speakers were

meant to be a complement to lower-level listening classes and reading courses taught by Korean professors. However, they were not coordinated to match curriculums or share methods, with no communication channels set up between them. The foreign English faculty operated from within a bubble in the university structure and was managed by the English literature department. The third university began with a similar plan of team teaching with conversation classes taught by native English speakers and reading classes taught by Korean professors; however, eventually it merged the two and now both native English teachers and Koreans teach four-skills classes with a reading/writing emphasis. The general English department in this university, like the second, is organized and managed by the English literature department, though it functions as an independent entity. It is important to note that most universities have both English literature and English education departments, who also employ native-English speakers to teach content courses, and often vie for control over the general English department (see Section 2.6 below).

Furthermore, a new plan is currently underway to encourage foreign students to study in Korea. The "Study Korea Project" hopes to triple the number of foreign students in higher education over the next five years from 17,000 to 50,000 by 2010 through overseas recruitment (including the launching of a website - www.studyinkorea.go.kr), and a 25% increase in foreign scholarships (Brender, 2005a). Individual universities are also increasing the number of courses taught in English, with some such as Korea University requiring most new faculty members to be able to teach in English with the aim of having more than two-thirds of classes taught in English by 2010 (Brender, 2005b). Further, in 2008, some top universities in Seoul had doubled the required number of courses taught in English for graduation. These new reforms appeared feasible given the fact that between 70% and 80% of the faculty at universities such as Yonsei University and Pohang University of Science Technology had earned their advanced degrees abroad (Brender, 2005b). Many of these schools also continued to boost their professional training for Korean faculty to aid in their ability to conduct classes in English through the use of multimedia and online offerings. Additionally, as of 2009, the Korean government had began developing its own version of an English proficiency test: "Efforts will continue to resolve inordinate demands for English education, starting with the development of a national English proficiency test which will be used as material for employment, study abroad, and possibly college admission" (MEST, 2009a, p. 8).

2.5 ICT in Korean Education

The recognition of the benefits of ICT in education is a growing trend internationally as well as in Korea. Among policy-makers worldwide, "a largely uncritical consensus emerged" (Debande, 2004, p. 191) in support of the introduction of ICT into the educational system which has led to various national policies of implementation. However, many researchers and educators continue to be skeptical, citing a lack of conclusive findings and an under-emphasis on pedagogical concerns. Consequently, recent research no longer seeks to answer whether technology use in education is generally good or bad, but instead investigates the pedagogical underpinnings and innovative potential of the medium (Debande, 2004; Hampel & Sticker, 2005; Kim, J., 2004; Kim, S., & Bagaka, 2005; Kim, H. & McLean, n.d.; Pennington, 2004; Wozney, Vivek & Abrami, 2006).

Moreover, the ubiquity of technology in society has greatly contributed to its conditional acceptance in various fields of education, including language learning. Chapelle (2001), for instance, stated that "(a)s we enter the 21st century, everyday language use is so tied to technology that learning language through technology has become a fact of life" (p. 1). In Korea, this has been particularly relevant given its high rate of Internet usage and large public and private investment in ICT (Marginson & McBurnie, 2003; MOE & HRD, 2003, 2006).

To get a sense of the importance that Korea places on technology, one needs only to consider the array of policies and reforms for ICT use in education that have been implemented. In its regular publication, the "Adapting Education to the Information Age" white paper, the Ministry of Education and Human Resources Development provides a brief history of the advancement of ICT use in Korean education (MOE & HRD, 2006). The first or "Beginning Stage" from 1978 to 1985 involved the use of television and radio broadcast to enhance curricula, while the second or "Rolling Out Stage" from 1986 to 1995 saw the first use of computers in basic education. The third or "Evolving Stage" from 1996 to 2000 concentrated on legal issues and infrastructure reform, while the current or "Expansion Stage" which began in 2001 seeks to improve learner-centered teaching methods and enhance support for research.

Another measure, the Presidential Commission on Education Reform of 1984-1987, established the Korea Multimedia Education Center (later renamed the Korean Educational Development Institute or KEDI) to contribute to the integration of ICT into education (Lassche, 2000). In the 1990s, the Ministry of Education launched a globalization campaign aimed at promoting modernization in education by requiring computer literacy and English language proficiency in primary and secondary schools – "The Comprehensive (or 'Master') Plan for Developing ICT Use in Education" (KEDI, 2007; MOE & HRD, 2003, 2006). The plan was divided into various phases, with particular emphasis on building information technology infrastructure in schools, teacher training, and promoting research (see Figure 2.1).

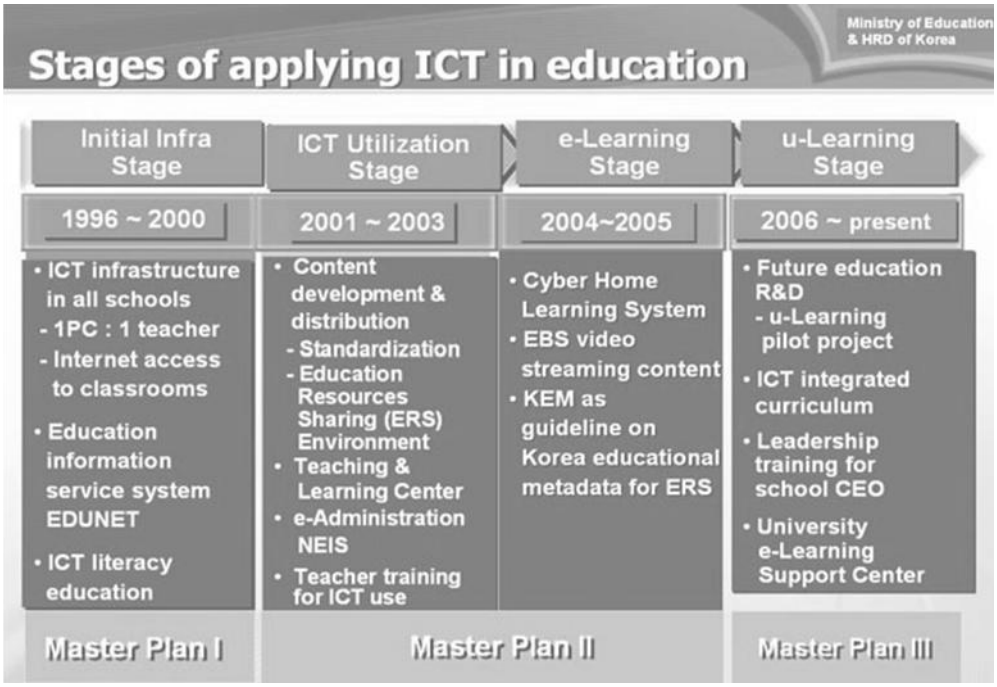


*Figure 2.1.*Stages of applying ICT in Korean education (MOE & HRD, 2007, p. 26).

The plan also led to the establishment of four cyber campus consortiums with 16 cyber universities and other supporting educational websites (KEDI, 2007; MOE & HRD, 2003, 2006).

Another of the major plans, the "Brain Korea 21 (BK21)", involved two phases with a budget of US $1.34 billion to improve research and training for professors and students (Brender, 2006b; MOE & HRD, 2006). The first phase (from 1999 to 2005) was so successful that the government nearly doubled the budget for the second phase (2006-2012) to US$ 2.03 billion (Brender,

2006b). In addition, the newly named "Ministry of Education, Science and Technology (MEST)" has instituted a number of dramatic reforms involving ICT, including a requirement for all universities and junior colleges in Korea to "display key information updates on their own home pages and a shared portal site at www.academyinfo.go.kr" (p. 7), as well as a plan to develop and adopt 100 digital textbooks for use in all levels of public education by 2011 (MEST, 2009b). Once again, when one considers these and other ongoing plans such as the "New University for Regional Innovation", the "Connect Korea Project", the "Vision 2000 Project", and the "e-Campus Vision 2007", it is clear that the use of ICT in education is a major concern for Korean society and one in which they have a deep conviction and investment.

This interest and investment have also led to numerous studies conducted into evaluating the effectiveness of these programs and projects. For instance, various researchers began to study the infrastructure and implementation of ICT in primary and secondary schools throughout Korea in an attempt to provide empirical data upon which to base decisions for improvement. Suh (2004), for instance, surveyed 161 primary and secondary English teachers in the Gangwondo province and found that, of the 90% who reported having had technology training, most did not use or seldom used a computer in the classroom owing to a lack of time. Jo (1995) found that overall Korean schools had considerable hardware and software resources owing to strong government support. However, the primary and secondary teachers in the study expressed discontent with the government mandates on computer use in the classroom which lacked proper logistical support or provisions for training (Jo, 1995). Similar results were reported in another study by Kim and McLean (n.d.), which described the Vision 2000 Project, a Korean government effort to prepare students for the "information era". Teachers in the study said that they did not have enough time to develop content, did not know where to find supportive materials, and wanted to learn how other teachers teaching the same course were using the Internet to teach (Kim & McLean, n.d.).

In the *International Report from the Inspectorate* in 1998, the Further Education Funding Council (FEFC) reported that Koreans had pride in and placed a high emphasis on education, and devoted a considerable proportion of the gross domestic product (GDP) to education, including a substantial investment in technology when compared with the United Kingdom. The report, however, like many subsequent studies, did not conduct teacher interviews or surveys on implementation or training and so failed to provide a richer account of the situation. This

illustrates the lack of holistic studies and points to one of the biggest impediments to ICT integration in English programs in Korea: an overall lack of information and verifiable research in the area (Hampel & Stickler, 2005; Kim, J., 2004; Kim, S., & Bagaka, 2005; Kim, D., & Margolis, 2000). As S. Suh (2004) puts it, "One of the major challenges facing educational policy in the information age is how to integrate computer technology into the English language learning curriculum" (p. 1040). This sentiment has been echoed by other researchers internationally (Cuban, 1997; Ertmer, 2005), who have voiced the need to study "the messy process through which teachers struggle to negotiate a foreign and potentially disruptive innovation into their familiar environment" (Zhao, Pugh, Sheldon & Byers, 2002, p. 483). Consequently, at the time of the study, the researcher was not aware of any qualitative studies focusing on teachers' perceptions of technology use in higher education English language programs in Korea.

2.6 Prelude to the Problem

It is useful to imagine the situation for tertiary English teachers in Korea who laments the lack of contact hours with students and therefore regularly ponder the best use of class time with other instructors. If they teach at one of the more prestigious universities in the country, their classroom is equipped with a computer connected to an LCD projector for teachers' use. They also know that the overwhelming majority of their students have computers available to them at home and at various locations on campus. From various class projects and other presentations, they have realized that their students were quite familiar with using computer programs and projectors (as well as many handheld devices such as cell phones and media players) although they often lacked a sense of how to do so economically and effectively. Conversely, they have also noticed that most instructors in their department do not use their classroom computers very often (if at all) and that most are highly skeptical of their use. This state of affairs may seem ironic given the substantial effort by the Korean government to implement the use of technology in the classroom mentioned above.

It is for these reasons that the researcher has devoted many hours of study and consideration to why English teachers in Korea have largely chosen not to use computers in their instruction despite often having ample resources and exposure to them. This effort to isolate the causes of and possible solutions to this problem therefore prompted the current study.

2.7 Summary

In this chapter, the researcher's background as a teacher/researcher who was interested in theory which is situated and has practical application was presented. An essential part of this was the researcher's belief in the constructed nature of learning which involves not only the learner but also the social situation. The motivation to conduct research into ways to improve English teaching methods was shown to come from over 15 years of teaching experience in Korea and through professional development, including involvement in professional organizations.

It was then pointed out that the researcher's beliefs in constructivism were based on the work of Piaget, Vygotsky, and, in particular, John Dewey. More specifically, although Piaget believed that learning progressed in stages based on biological progression, and Vygotsky argued against this view, it was felt that both stressed the social aspects of learning and the view that there was not one knowable reality. Dewey likewise emphasized the social view of learning and the belief that one's experiences could be educative or "mis-educative". The goal of education from this perspective, then, is to provide experiences which form a continuous and therefore connected path of learning which instills openness, cooperation, and the development of critical thinking skills.

The second part of the chapter briefly detailed the history of higher education in Korea, English education in higher education in Korea, and the use of ICT therein. Higher education in Korea was founded on Confucian principles, but equally influenced by western theories of learning introduced by Christian missionaries in the late 1800s. As was shown, modern universities in Korea can be said to have grown largely from the seeds planted by missionaries and in some ways encouraged by the Japanese colonization from 1910-1945. Likewise, the United States

occupation that followed not only cemented many academic standards and procedures, but also highlighted the growing importance of English education in Korea. Government policies that followed from the 1960s emphasized the direct vocational relationship of higher learning to the growth of the nation which as a side effect devalued quality in education. From the 1980s, major government reforms in education which also advocated the development of English learning and technology use created an atmosphere of progress, but often led to inconsistencies in implementation. Various subsequent studies have tried to reconcile this gap between policy and practical application with mixed results. However, there was shown to be a considerable lack of information regarding how administrators and English teachers in Korea can effect positive change in higher education and make use of available technology.

Chapter Two ended with a sketch of the emergence of the problem, including the impetus for the research that led to the formulation of the study. Chapter Three provides an account of the process that the researcher went through in deciding on the structure of the study. It is hoped that this will allow the reader to follow the process from start to finish and thus provide a more holistic understanding of the research methodology.

Chapter Three: The Emergence of the Problem

3.1 Introduction

This chapter outlines the step-by-step process that led to the methodology employed in this dissertation. It begins with the initial attempts to find answers to the problem in the literature. Theories of teacher decision making as well as both the barriers to and the enablers of technology integration are summarized. Next, theories of technology diffusion and integration are briefly described. The second half of the chapter then deals more directly with the emergence of the problem for this study, including an outline of Rogers' (2003) diffusion of innovations theory. This is later related as the foundation for choosing a grounded theory methodology of inquiry. The chapter ends with a summary of the main points.

3.2 The Emergence of the Problem: Fundamental Research

Research into teacher decision making and teacher aims is a natural place to begin trying to understand why teachers decide not to use the technology available to them. However, after the researcher considered a range of studies, this topic seemed to be very theory laden and did not yield any real, practical answers – therefore an exploration of both the barriers to and the enablers of technology use was then pursued. The patterns that emerged from this research also pointed toward the consideration of theories of diffusion and particularly Rogers' (2003) diffusion of innovations theory. Subsequently, a close reading of Rogers' book on the theory led to an investigation of grounded theory which eventually became the methodology employed in this study. Findings and insights revealed from each of the above areas are presented below.

3.2.1 Teacher Decision Making: Theoretical Underpinnings

Like many areas under consideration in this study, research into teacher decision making involves a vast realm of knowledge that is anything but complete. It incorporates such extensive areas as psychology, sociology, philosophy, and education. However, for the purposes of this dissertation, it was necessary to limit the presentation to areas which best advance the current discussion. These include two main determinants of teaching practices: teachers' context beliefs and self-efficacy. Two sources which provide an overview of context beliefs and self-efficacy, Lumpe and Chambers (2001) and Skaalvik and Skaalvik (2007), are outlined below. The former acknowledges the dominant role that experience – both as teachers and as students – plays for teachers and focuses on theories related to teachers' context beliefs about using technology in the classroom. The latter discusses efficacy and self-efficacy as constructs that aid an understanding of factors that can lead to teacher burnout.

An important theory explored by Lumpe and Chambers (2001) is Ford's (1992) motivation systems theory, which proposes two types of what he termed "personal agency beliefs": "context" and "capability" (p. 94). Context beliefs involve a person's beliefs about people and factors in the external environment that impact on one's goals, while capability is very similar to the better known notion of self-efficacy espoused by Bandura (1977). Ford (as cited in Lumpe & Chambers, 2001) believed that personal agency beliefs play a "crucial role" (Lumpe & Chambers, 2001, p.94) in the realization of educational goals.

Bandura's (1997) popular self-efficacy belief is an off-shoot of social cognitive theory and emphasizes teachers' perceptions about how they can "plan, organize, and carry out activities required to attain given educational goals" (p. 612). This is similar in many ways to Rotter's (1966) theory of internal and external control, which shows teacher self-efficacy to be a more relative construct more heavily weighted by external factors. These factors determine teachers' effect on students (through education) as compared to external considerations such as students' natural ability and their home environments. A final comparable theory is that of the integrated model of behavioral prediction (Fishbein, 2000; Fishbein & Yzer, 2003), which builds on earlier work (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), and which "posits that behavior is a

function of attitude, norm and self-efficacy judgments" (Yzer & Southwell, 2008, p. 15). A host of dimensions of each of the above theories (often with differing usages of the same terminology) are further detailed, however, all views attempt to explain why people not only make the decisions they do, but also whether they perceive "aspects of their environment as fraught with danger, dwell on their coping deficiencies, and magnify the severity of possible threats" (Bandura, 1997, as cited in Skaalvik & Skaalvik, 2007, p. 614). Consequently, teachers' decision making in the above theories involves the interplay of multi-dimensional concerns that can seem to have more to do with theories than the realities of the classroom. Hence, it was more productive for the researcher to examine decision making from a more practical standpoint.

3.2.2 Teacher Decision Making: Practical Considerations

Kelchtermans (1996) takes a more pragmatic look at teachers' decision making by considering the teacher's life, needs, and goals in broader terms of "professional self-understanding" (p. 604):

- the self-image of the teacher: What kind of teacher am I?
- the self-esteem of the teacher: How well do I think I am doing as a teacher?
- the job motivation of the teacher: Why did I choose this? What motivates me?
- the task perceptions of the teacher: What must I do to be a good teacher?
- the perspective of the teacher on the future: What do I expect of my future professional situation? (p. 604)

What is often lost in educational research but emphasized here is the importance of taking into account the lives of individuals and the concerns which frame any decisions they make. Teachers do not make abstract decisions based on isolated and objective factors – they are most concerned with their lives, jobs, motivations, and consequences which can complicate even the simplest decisions they make. As they progress in their experience, teachers make decisions from a foundation of knowledge which they have built up based on their lives and beliefs. It is from this perspective that most models of teachers' thinking and decision making usually limit their scope.

For instance, Fogarty, Wang, and Creek, (1983) summarized the characteristics of the process teachers go through as involving the following skills and strategies:

> a) a basic teaching skill is the ability to know when to apply an effective instructional action in response to environmental cues; b) ongoing teaching often involves testing cue information against stored knowledge about students, subject matter, and teaching principles; and c) strategies for effective achievement of instructional goals cannot be exactly preplanned[;] however, most depend on the nature of environmental cues, particularly student performance cues that arise during the instructional process (Collins & Stevens, 1982; Peterson & Clark, 1978; Shavelson, 1976; Snow, 1972). (p. 23)

The least obvious part of the above summary is the last point that teachers cannot plan for much of what they will have to do in the classroom. To the uninitiated, this may seem as though teachers are essentially 'winging it', but in fact the ability to make decisions 'in-flight' is a necessary skill for teachers that is perfected with experience. Much like accomplished chess players, math experts or masters of theoretical physics, proficient teachers do not long consider many of the problems they face, but "rather quickly access an appropriate solution path based on their mental representations of the domain" (Fogarty, Wang, & Creek, 1983, p. 23). Likewise, Mullock (2006) relates a study by Woods (1996) which concluded that "decisions were heavily influenced by emergent information" (p. 49). This becomes more significant when considering the fact that teachers have on average three or four pedagogical thoughts per minute (Gatbonton, 2000). Mullock (2006) does go on to say, however, that it is important not to "confuse the map with the territory" (p. 51) – researchers often have to rely on verbal reports or other indirect methods of data collection which reveal only a partial picture of the situation at best.

Another way to look at teacher decision making is in relation to aims. Issacs (1994) found professors' eight main aims of lectures to be to:

1) make students think critically about the subject;
2) demonstrate the way professionals reason in this subject;
3) make students more enthusiastic about the subject;
4) give students the most important factual information about the subject;
5) explain the most difficult points;

6) discuss the most interesting points in the subject;
7) demonstrate how to solve problems;
8) provide a framework for the students' private study. (p. 208)

In a more recent study by Sutherland and Badger (2004), teachers generally revealed that they merely tried to convey their passion for their subject in the hope of likewise motivating students. This is not a new finding, but perhaps exposes an often overlooked gap between theory and practical application. This insight brought the investigation full circle and pointed to the need for a direct comparison with the literature on the barriers to technology use.

3.3 General Barriers to Technology Use

Owing to the plethora of studies and varied results in this area, only a select number of applicable studies are discussed in the interest of furthering discussion on the topic. For more detail on the scope and dimensions of recent research, please refer to the literature review provided in Appendix A, which highlights a number of studies, along with their results and supporting quotations.

In *Conditions for Classroom Technology Innovations*, Zhao, Pugh, Sheldon and Byers (2002) sought to outline and define the conditions that mediate the degree of success in ICT implementation, eventually concluding that there were 11 principal factors which fall under three "interactive domains, the teacher, the innovation, and the context" (p. 482) – these domains are illustrated in Figure 3.1 (graphics adapted from original). The use of the adjective "interactive" in the above phrase is significant in that the authors lament the inattention of researchers and practitioners alike to the broader issues and complexity involved between the domains. They conclude with the suggestion that "technology standards be expanded to include the social and pedagogical contexts and implications of technology" (Zhao, Pugh, Sheldon & Byers, 2002, p. 511). This call to expand the view of the barriers to technology use beyond isolated variables to a more holistic consideration has also been echoed by other authors (Becker, 2000; Rogers, 2003; Van Den Berg, 2002; Venezky, 2004). This may be seen as a natural reaction to the over

abundance of specific barriers to integration which have been identified, leading to the conclusion that there are few factors in education which do not seem to play at least a minor role in technology integration. For instance, consider what Becker (2000) provides in explanation of the necessary factors for successful integration:

> However, under the right conditions – where teachers are personally comfortable and at least moderately skilled in using computers themselves, where the school's daily class schedule permits allocating time for students to use computers as part of class assignments, where enough equipment is available and convenient to permit computer activities to flow seamlessly alongside other learning tasks, and where teachers' personal philosophies support a student-centered, constructivist pedagogy that incorporates collaborative projects defined partly by student interest – computers are clearly becoming a valuable and well-functioning instructional tool. (p. 29)

Assuming that research into the barriers to integration is conducted to provide practical advice or guidelines on how to overcome them, it is hard to imagine where interested teachers would begin to make adjustments based on the above suggestions. Perhaps a better approach than identifying specific barriers would be to develop a description of the process involved in order to affect the system's flow, thereby allowing all the smaller factors to fall into place. However, in this idea, there is a basic assumption that some researchers may not be willing to acknowledge: the fact that technology integration is not always seen as having a positive effect upon education. Therefore, in order to get at the heart of such a problem, it is often necessary to strip away all of the assumptions involved.

Two such studies (Mick & Fournier, 1998; Shedletsky & Aitken, 2001) have taken this approach of considering the benefits and impediments of technology as multi-dimensional paradoxes. Mick and Fournier (1998), for instance, believe that "consumers" of technology are often "faced with simultaneously opposing consequences" which lead them to "vacillate in a perceptual space of yes/no that never settles (see, e.g., Gregg 1995)" (p. 125). Specifically, they posit eight "central paradoxes of technological products" (p. 126) which can perplex users into non-action: 1. Control/chaos; 2. Freedom/enslavement; 3. New/obsolete; 4. Competence/incompetence; 5.

Efficiency/inefficiency; 6. Fulfills/creates needs; 7. Assimilation/isolation; and 8. Engaging/disengaging (Mick & Fournier, 1998, p. 125).

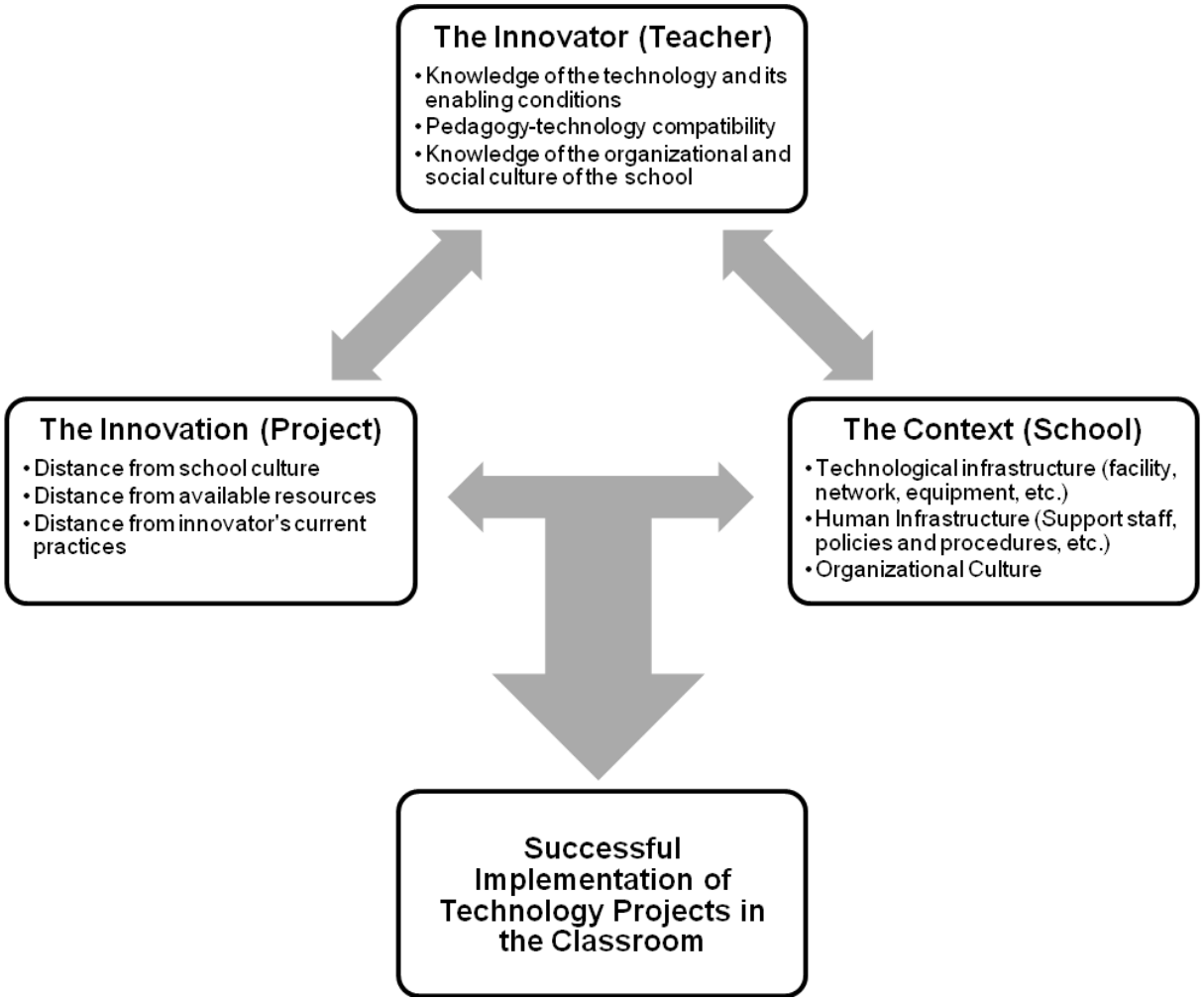


Figure 3.1. Conditions for classroom technology innovations (Graphics adapted from Zhao, Pugh, Sheldon & Byers, 2002, p. 490).

In each of the above paradoxes, teachers have to consider the dimension in terms of degree or position on a continuum. For instance, the first paradox "Control/chaos" refers to the fact that the use of technology helps control certain previously uncontrollable factors (such as with the use of presentation software, word processing, and the like); however, it can also unleash a number of factors which can loosen control or create chaos (such as problems with saving/manipulated

files/images, and security issues). Their framework of paradoxes, though theoretical, allows for a practical apprehension of the process to enable teachers to affect their situations. Mick and Fournier (1998) conclude that previous research has often been "potentially oversimplifying and even condescending" (p. 141), suggesting that their taxonomy would help "mitigate two biases that have been consistently exhibited in the diffusion paradigm (Rogers, 1995), namely, the source bias (favoring the manufacturer's viewpoint) and the positivity bias (assuming that new technology is always beneficial)" (p. 140).

Likewise, in the second study, Shedletsky and Aitken (2001) illustrate their argument by providing four paradoxes of online ICT work:

> (a.) for faculty, more freedom equals less freedom; (b.) for teaching, more work is perceived as less work; (c.) for learning, more accessibility leads to less human touch; (d.) for administrators, desire for less spending causes more spending. (p. 206)

Their first paradox addresses the assumption that ICT means more freedom for teachers when in fact, owing to frequent computer breakdowns, unavailability, and institutions claiming ownership over teacher's online work, the opposite may be closer to the truth (Shedletsky & Aitken, 2001). Their second paradox relates to the false belief that ICT means less work for teachers. To illustrate, they quote Gaud (1999), who observes that "online instruction is essentially a writing medium, resulting in a writing intensive course" (p. 209) which leads to more time-consuming editing responsibilities for teachers. They also point out that, because "with online teaching, the primary role of the faculty member is to select and evaluate readings and resources" (p.209), longer hours of searching for appropriate materials are necessary (Shedletsky & Aitken, 2001). Their third paradox lies in the idea that ICT leads to more accessibility and better learning. However, they believe that ICT is actually more expensive (up to three times as much as a traditional course), more complicated, and unstable, and requires teachers and students to establish new relationships based on constructivist principles, which is a difficult task at best (Shedletsky & Aitken, 2001). They also call into question the idea that ICT motivates students, suggesting that perhaps students excited by ICT use are naturally more inclined and motivated to learn using ICT than other students. Their final paradox states that the desire for less spending on ICT actually leads to more spending owing to bad administrative decisions based on financial concerns which lead to poorly designed programs that need

additional expenditures for success (Shedletsky & Aitken, 2001). This is similar to Budin (1999) who believed: "that until recently, educational institutions had their priorities backwards. They were more concerned with acquiring equipment and software than emphasizing teacher development and planning for the integration of technology" (p. 205).

Whatever the reasons may be, the dearth of teachers who use available ICT in their classrooms is confusing and has for decades continued to occupy numerous researchers from Cuban (1997), Becker (2000) and Pelgrum (2001) to Petrie (2003), Pennington (2004) and Franklin (2007). In fact, the position by Larry Cuban throughout the 1980s that "computers as a medium of instruction and as a tool for student learning, are largely incompatible with the requirements of teaching" (Becker, 2000, p. 1) continues to be supported in the findings of numerous researchers, including response studies by Henry Jay Becker. Moreover, in the Apple Computers of Tomorrow (ACOT) study by Dwyer, Ringstaff, and Sandholtz (1990), Cuban's point is further supported and illustrated in the frustrations of some of the ACOT staff members:

> If I had my druthers [choice of preference], I don't think I would ever look at a computer again. One of my students got into the Corvus network and lost lots of information because he doesn't know what he is doing. It's a typical situation, and it's caused a major problem because now the computers are down. There are so many variables like this that we deal with on a day-to-day basis that I didn't anticipate being part of this program. I'm anxious for the weekend so I don't have to do anything with computers. (p. 5)

Another example from a study in Australia by Albion in 1996 provides further evidence of the pervasiveness of this problem:

> In a study conducted at the University of Southern Queensland (Albion, 1996b), 75% of 107 students on their final teaching practice reported that there was a computer in the classroom where they worked but only 50% of those with a computer in their classroom used it for teaching. This was despite 90% having rated the computer as having some or a great deal of potential usefulness for primary education. (Albion, 2000, p. 14)

Finally, two additional recent studies have reached similar conclusions: "The reader should be aware that 20 years of research have not yet provided a recipe that has led to a large-scale integration of ICT in the lesson practices of teachers" (Pelgrum, 2002, p. 2); "These analyses indicated that teachers have explored the use of technology in instruction rather extensively but are just beginning to experiment with technology" (Kotrlik & Redmann, 2005, p. 211). Owing to the fact that teachers have professed for years that computers have potential for education but most have not begun real integration, it was decided to turn the investigation on its head and explore what common characteristics are present when teachers do choose to use computers extensively in their teaching.

3.4 General Enablers of Technology Use

Like research into the barriers of technology use, there are numerous studies on the enablers to technology use. Appendix B summarizes the findings of a number of studies on the enablers to implementation and illustrates the wealth of research which underpins the following directed discussion.

Beginning again with Zhao, Pugh, Sheldon, and Byers' (2002) research, participants in their study (118 teachers or teacher groups) were chosen and funded by state technology innovation grants in an effort to "provide resources directly to the classroom teachers so that information technology could affect student success" (p. 485), and aid implementation for teachers who, though successful, were not currently employing it. Surveys were then conducted with all 118 participants, with 32 also taking part in interviews and 10 additionally observed in the classroom. As previously stated, findings were organized in three interactive domains: the innovator, the innovation, and the context (refer to Figure 3.1). Although this study was quite thorough in presenting aspects of each domain which highlight the factors necessary for successful implementation, the authors point out that of the three domains factors "associated with the innovator, the teacher in our study, appeared to play a more significant role than the other domains" (Zhao, Pugh, Sheldon & Byers, 2002, p. 507). Perhaps this is not surprising, given the fact that the innovation grants were given directly to teachers and therefore may account for

teachers' dominant roles in influencing the results. However, this study is informative and distinctive in its holistic approach and detailed findings.

Unpacking the first, innovator domain, three important aspects revealed include: technology proficiency, pedagogical compatibility, and social awareness (Zhao, Pugh, Sheldon & Byers, 2002). Collectively, these aspects show that teachers' pedagogical beliefs must be aligned with their knowledge and ability to use technology. They must likewise be socially savvy enough with peers, faculty, and administrators such that they can cover any shortcomings or acquire help from others when needed. In short, teachers must not only have the ability to comprehend the technological possibilities but also have the practical knowledge of what is involved as well as the appropriate skills to be able to make them happen. Furthermore, results related to the second innovation domain show that "innovations varied along two dimensions, distance and dependence, and that success was related to these two dimensions" (Zhao, Pugh, Sheldon & Byers, 2002, p. 496). Of the 10 participants observed in the classroom, those who organized and conducted projects which used innovations which were close in 'distance' and had less 'dependence' on outside resources and agents were most successful. Again the emphasis was on teachers being able to do what works when needed: the more teachers did not know about an innovation and/or did not have the ability to maintain it by themselves, the less successful were their projects. The final domain, the context, includes three aspects – the infrastructure: human and technological, and social support (Zhao, Pugh, Sheldon & Byers, 2002). The keywords for this domain seem to be "planning" and "trust"; successful innovations are more likely to take place if the infrastructure is well-planned, set up and maintained so teachers can trust its use. In other words, the infrastructure and its gatekeepers need to be consistent and, above all, reliable.

All of the above findings illustrate the problems associated with taking a research approach which merely defines the individual barriers to and/or enablers of implementation. As the authors state, technology training which follows these results is lacking an important holistic dimension:

> Most of the current efforts take a very narrow view of what teachers need to use technology – some technical skills and a good attitude. Many in-service workshops often take the format of motivational speeches by a forward-looking visionary plus sessions on how to use a piece of software. Few pay much attention to the pedagogical or curricular

> connection (Education Week, 1998). Even fewer attempt to help teachers develop their knowledge of the social and organizational aspects of the school. (Zhao, Pugh, Sheldon & Byers, 2002, p. 511)

This sentiment is echoed by Watson (2001), who in a more philosophical text uses an analogous explanation of the implications of failing to consider pedagogy in technology training:

> It is as if pupils are taught about the functionality of the component parts of a car, such as the steering wheels [sic], gears and brakes, but never actually take a vehicle onto the road for the purpose of traveling from A to B. How has this come about? (p. 254)

Watson is trying to draw a distinction between learning *about* technology use and learning *with* it – the former having a superficial vocational goal, while the latter having a more in-depth concern with pedagogy. This involves deciding what skills and knowledge teachers and students will need in the 21st century, as opposed to current learning which is "too embedded in past perceptions of knowledge, schooling and learning" (Watson, 2001, p. 262). Determining how to aid technology use without knowing what use it will be put to, he feels, is putting the cart before the horse. Therefore, Watson believes that it is useful to reframe philosophically the issue around a different set of values for education such as Morin's (1999) "Seven knowledges necessary for education for the future" found in Table 3.1. While not practical as a guide for change, this framework does help to regard learning as a more holistic experience than it is currently being considered under the technological perspective. Moreover, this view is consistent with many of the recognized learning goals of technology use:

> And the fact of ICT enabling access to large amounts of data is relatively uninteresting compared with furthering opportunities to learn to select, evaluate and analyze information with discrimination, learnt from critical use and leading to an understanding of issues of validity, currency, and veracity. (Watson, 2001, p. 264)

Taken together, the more conceptual view of Watson (2001) and the more practical view of Zhao, Pugh, Sheldon and Byers (2002) were thought to provide an excellent framework for considering the perceptions and uses of technology by English teachers at Korean universities. However, after further research, various additional studies pointed to the apparent explanatory power of diffusion theories in exploring technology implementation in education both

contextually and in detail (Baskerville & Pries-Heje, 2001; Jacobsen, 1998; Liu & Huang, 2004; Pennington, 2004; Snider & Gershner, 1999).

Table 3.1
Morin's "Seven Knowledges Necessary for Education for the Future" (Morin, 1999)

1. Blindness of knowledge (past presented knowledge as something fixed and static, whereas knowledge changes).
2. Relevant knowledge (cover real issues and develop a perspective across information within the whole context).
3. Teach the human condition (life gets fragmented in school, so put it back together).
4. Teach a world identity (go beyond nationality).
5. Confront uncertainties (prepare for future uncertainties more than study the past).
6. Teach understanding (to eliminate racism, xenophobia, and contempt).
7. Ethics of humanity (be a part of communities and the human conscience).

3.5 Theories of Diffusion and Rogers' (2003) Diffusion of Innovations Theory

Various diffusion theories attempt to provide a framework for explaining why and how individuals make decisions about using innovations as well as the overall process of diffusion. Three of the most popular include the concerns-based adoption model (Hall & Hord, 1987), social learning theory (Bandura, 1977), and the theory of reasoned action (Ajzen & Fishbein, 1980). However, each of these models, while useful in explaining various aspects of the diffusion process, does not have the scope or rationality of Rogers' (2003) diffusion of innovations theory. The concerns-based model focuses primarily on the process of the innovation; social learning theory explains the social learning and observational aspects; and, the theory of reasoned action deals exclusively with the behavioral characteristics. However, Rogers' diffusion of innovations theory has played a central role for many years in the study of

technology innovation in education, largely owing to its ability to consider all of the above concerns.

In his theory, Rogers (2003) defines diffusion as "the process in which an innovation is communicated through certain channels over time among the members of a social system" (p. 5). In this definition and in his theory, Rogers emphasizes the social processes that affect why and most importantly how an innovation is either adopted or ultimately rejected. It has explanatory power over the perceived attributes of an innovation ("relative advantage", "compatibility", "complexity", "trialability", and "observability"), the process ("knowledge", "persuasion", "decision", "implementation" and "confirmation"), and the adopters ("innovators", "early adopters", "early majority", "late majority" and "laggards"), including their characteristics ("socioeconomic", "personality" and "communication behavior").

However, Rogers' (2003) theory has two recognized disadvantages for the current study: a pro-innovation bias; and, an inadequacy in data collection techniques which are mostly simple surveys or interviews alone. Too often, in the researcher's view, diffusion studies have relied entirely on simple surveys to draw detailed conclusions with questionable implications. This becomes evident in some of the more candid papers, when, as part of the conclusions, the authors note in passing that the reliance on surveys may have in fact not been representative of what actually happens in practice. Likewise, in his book, Rogers (2003) notes that diffusion researchers often struggle to justify their results from reliance on surveys or interviews alone:

> It should be acknowledged that rejection, discontinuance, and reinvention frequently occur during the diffusion of an innovation and that such behavior may be rational and appropriate from the individual's point of view, *if only the diffusion scholar could adequately understand the individual's perceptions of the innovation and of the individual's situation*. (Rogers, 2003, p. 114; *emphasis added*)

The researcher believed that Rogers was making an appeal to other researchers to employ more holistic, qualitative means when studying this phenomenon. Though not explicitly stated, it also follows that an independent look at the problem, separate from the confines of Rogers' theory and employing a methodology with an even wider scope, would best serve to overcome the acknowledged biases and perhaps reveal insights or conceivably offer another theory altogether.

To begin understanding why and how someone does something, one must have a wider grasp of the problem, including the background context and situational variables as well as how individuals construct meaning from them. This seemed to be best approached through the use of a case study methodology as described below.

3.6 Case Studies and Grounded Theory

Nisbet and Watt (1984) believe that "(i)t is the context which is often the key to understanding effects in education" (p. 78). Other researchers (Stark & Torrance, 2005; Sturman, 1994) concur, stating that the 'richer' descriptions available through the in-depth study and the multiple techniques of case studies allow for a more holistic view of relationships and effects in education. In a situation lacking in substantial background studies such as the current study, the case study method was particularly suitable given that, in the written account, the reader can "see how the concepts have 'emerged', and possibly develop some alternative concepts of his [*sic*] own from the evidence" (Nisbett & Watt, 1984, p. 85).

Alternatively, the main concerns with employing a case study method involve concepts of credibility such as reliability, validity, and generalization (Corbin & Holt, 2005; Nisbet & Watt, 1984; Sturman, 1994). One common, though imperfect, solution is to employ what Diesling (1972) referred to as the holist's response – what Tawney (1976) called triangulation – the use of multiple data collection techniques to add credibility and thereby help justify research results. To rely too heavily on positivist measures such as these, however, may be to restrict unnecessarily the most suitable and efficient way to acquire and "contend with the difficulties of an empirical situation" (Glaser & Strauss, 1967, p. 8). When the purpose of research is to explore a situation in order to generate an adequate understanding of a perceived problem and to posit a theory or theories for its resolution, then the true test of its credibility lies not in statistical justification but in its explanatory power and practical application. As Glaser and Strauss (1967) suggest in such cases, one's position is not logical but phenomenological – theories grounded in the details of circumstance will never be proven misguided by further research; they can only be subject to modification given new data and insights.

For these reasons, it was decided that the study should employ a grounded theory method (Corbin & Holt, 2005; Corbin & Strauss, 1990; Glaser & Strauss, 1967; Strauss & Corbin, 1998), which espouses the formulation of a theory from multiple research techniques with data that are generated and negotiated between the researcher and participants, thereby providing a more realistic or practical account of events. In this method, researchers rely on inductive reasoning to allow the data to reveal insights into phenomena, and then deduce conceptual categories to try to explain what is happening. The process gets quite involved and therefore the use of notes kept by the researcher (much like a professional journal) aids organization and insights. The end product of grounded theory is "an integrated theoretical formulation that gives understanding about how persons or organizations or communities experience and respond to events that occur" (Corbin & Holt, 2005, p. 49). Further, in light of the considerable debate over grounded theory method between objectivist epistemologies and more constructivist principles (Charmaz, 2000; Glaser, 1992; Greckhamer & Koro-Ljungberg, 2005; Strauss & Corbin, 1998), it is more intuitive to be slightly more aligned with the former than the latter despite its acknowledgement of post-positivist traits. While it is the firm belief of the researcher that individuals construct meaning from reality, it is also true that phenomena and reality can be objectively observed or at least in general, agreed upon (see Section 4.3 below for more detail).

3.7 Summary

This chapter documented the course of research that was initially followed to apprehend the problem of why and how teachers decide to use technology in their classrooms. It first reviewed theories on teacher decision making before considering more practical ideas. Theories of teacher decision making were shown to view the process mainly as an interplay among teachers' beliefs or feelings of confidence (based on numerous factors including skills and background), the feeling that they can accomplish particular goals (often called self-efficacy), and beliefs about contextual factors, and their ability to mediate and/or mitigate the former (usually termed "context"). Next, more practical views were considered which similarly take teachers' perspectives. Three perspectives were given in this area, including: the teacher's personal goals in life and teaching; the practical techniques employed during teaching; and, the general approaches teachers employ to accomplish learning aims.

Subsequently, an overview of the barriers and enablers was offered (in appendices) and emphasized (in text) through a seminal study by Zhao, Pugh, Sheldon, and Byers (2002). Their study organized the topic into three main domains: the innovator; the innovation; and, the context. Dimensions of each area were given with reference to factors that hinder or aid the implementation of projects. Their framework was found to be underpinned by the practical concerns of teachers who must have multiple abilities and skills (including social acumen) to be able to recognize and carry out what is necessary to advance their projects. This view was shared by Watson (2001), who suggested more philosophically that education and technology use needed to be debated more from a pedagogical stance that enables educators and students to use technology to gain 21st century skills.

The second half of the chapter briefly touched on diffusion research before highlighting Rogers' (2003) diffusion of innovations theory. Rogers' theory was initially seen as the most viable for this setting; however, suggestions by Rogers for the improvement of his theory in terms of the pro-technology bias and data collection techniques warranted the selection of a grounded theory approach. This came about from a close reading of Rogers' (2003) book which suggested the use of an encapsulated method of data collection and analysis which directly studies the entire setting without impediment from Rogers' or any other pre-conceived frameworks. The researcher felt that only then could the data and subsequent results be compared with Rogers' theory to overcome the pro-technology bias and other shortcomings he acknowledges – and in the process, possibly establish the basis for a new theory. Chapter Three concluded with some of the basic tenets of grounded theory and their application for the current study.

Chapter Four: Methodological Considerations: Diffusion of Innovations Theory, Grounded Theory, and Their Marriage

4.1 Introduction

This chapter begins by looking more closely at the tenets of Rogers' (2003) diffusion of innovations theory. First, Rogers' description of the "attributes of innovations" is explained, including "relative advantage", "compatibility", "complexity", "triability", and "observability". The "process" is then outlined with information related to "knowledge", "persuasion", "decision", "implementation", and "confirmation". Next, the "categories of adopters" are given, which include "innovators", "early adopters", "early majority", "late majority", and "laggards". In addition, the "characteristics of the adopter categories" are presented, including "socioeconomic", "personality", and "communication behavior". It should be noted that all of the expressions in quotations in Sections 4.1 through 4.2 are terms coined by Rogers which have important distinctions compared with their common use.

The second half of the chapter focuses on grounded theory as envisioned by Glaser and Strauss (1967) and advanced by Strauss and Corbin (1998). Concepts of "description", "conceptual ordering", and "theorizing" have provided a framework for considering coding procedures, "theoretical sampling", and the extensive use of memos. A brief consideration of the continuing debate between Strauss and Corbin's (1990, 1998) version of grounded theory and that of Glaser (1978, 1992) is presented. Chapter Four concludes with a theoretical argument which justifies the conceptual marriage of Rogers' diffusion of innovations theory with grounded theory.

4.2 Basic Tenets of Rogers' Diffusion of Innovations Theory

Everett Rogers is a writer of considerable clarity who dispenses with much of the pretense often found in books of a similar nature. In his 2003 book, *Diffusion of Innovations* (5th edition), he

clearly unpacks each area of his theory much like opening 'Chinese boxes' in which each concept is opened to reveal its components, which are then likewise opened to reveal their inner dimensions. He begins his book by stating his overriding theme: "Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5). It becomes evident that his theory is a social one that emphasizes the processes involved, together with ideas of "both the planned and the spontaneous spread of new ideas" (Rogers, 2003, p. 6). Four main concepts in his overarching statement are then illustrated: "innovation", "communication channels", "time", and "social system" (see Figure 4.1 – graphics adapted from original).

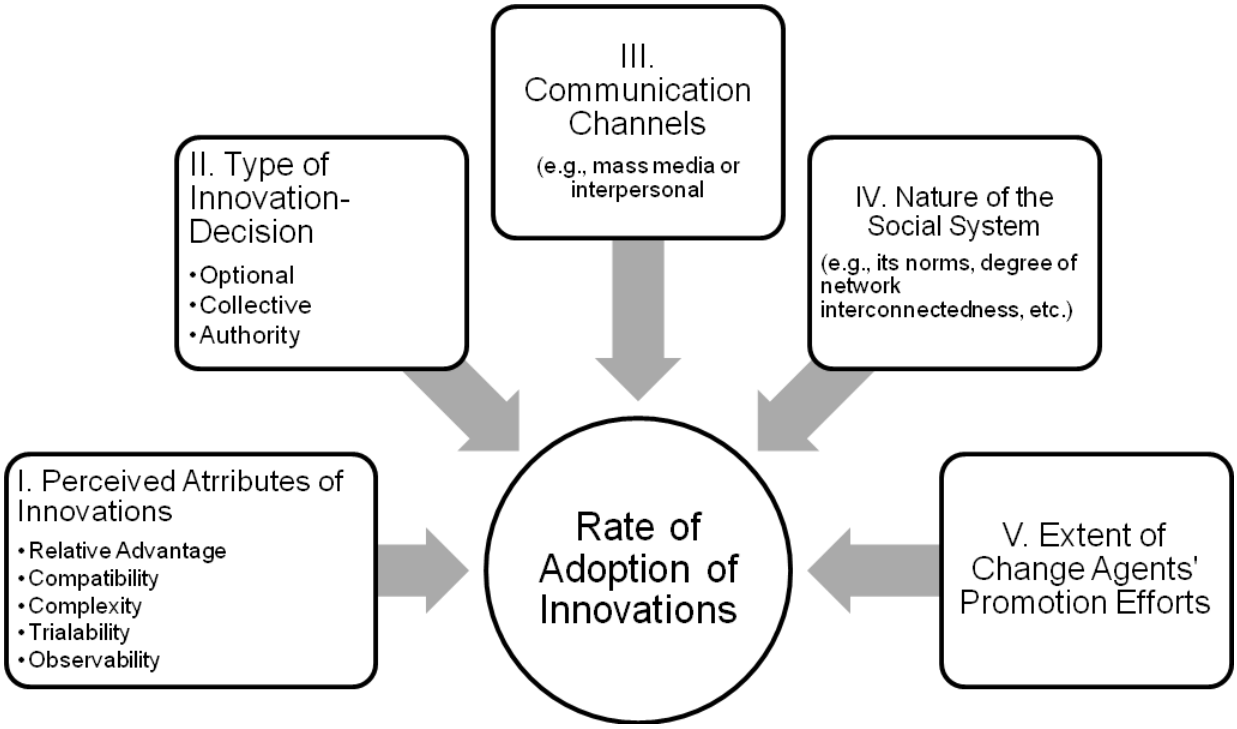


Figure 4.1. Variables determining the rate of adoption of innovations (Graphics adapted from Rogers, 2003, p. 222).

An innovation is something that is perceived as new – it can be an idea, a practice or even an object (Rogers, 2003). The use of the adjective "perceived" in this definition points to a concern or perspective based on an adopter (discussed below in Section 10.3), which is an important part

of his theory. Moreover, Rogers believes most innovations today are technological in nature, so much so that "we often use the word 'innovation' and 'technology' as synonyms" (Rogers, 2003, p. 13). Communication channels are based on participants creating and sharing information to reach mutual understanding, with channels being the means used to do so. Rogers contrasts mass media with interpersonal channels by stating that the former is usually more efficient and rapid, while the latter can be more persuasive for diffusing new ideas. Interpersonal channels are usually more persuasive if the participants have similar attributes, including needs, wants, and lifestyles (termed "homophily"), and less so if they do not (termed "heterophily") (Rogers, 2003, p. 19). Time is a difficult concept to measure, but an important element in three areas of Rogers' theory: the decision process for individuals; their innovativeness (how prone they are to accept innovations); and the rate of adoption in a given system. A "social system" is made up of individuals, groups or subsystems which are organized socially and communicatively. The social aspect relates to relationships, often hierarchies of position, while the communication element refers to the patterns or flow of information – what Katz (1961) equated to studying blood circulation.

Given the revolutionary effects brought about by new technologies, this area related to communication patterns is one of the most volatile in Rogers' theory. However, the provision of "norms" and "communication networks" does address this issue by taking into account established patterns of communication and the effects of changing opinions and opinion leaders on decisions either to adopt or to reject new technologies. Rogers further breaks down this component into three variations: individual decisions, collective decisions, and decisions by authorities. He also considers the consequences of decisions to adopt by rating them on three separate dimensional scales: "desirable/undesirable"; "direct/indirect"; and "anticipated/unanticipated" (Rogers, 2003, p. 31).

On the whole, Rogers' theory is well-thought out and organized, and is a very compelling framework for the study of how individuals, groups, and social systems make decisions about innovations. For these reasons, Rogers' theory is directly applicable to the area of technology use in education, particularly in its scope and attention to practical details garnered from findings based on experience and common sense. However, during the course of this study, certain

limitations were discovered as they relate to contextual factors. These limitations are discussed below in Sections 10.2 and 10.3.

4.2.1 The Attributes of Innovations

On the first page of the chapter on the attributes of innovations, Rogers underpins the constructivist nature of his theory by using the following quotation from Thomas and Znaniecki (1927): "If men perceive situations as real, they are real in their consequences" (p. 219). Moreover, Rogers states that between 49 and 87 per cent of the variance in the rate of adoption can be attributed to five perceived attributes: "relative advantage", "compatibility", "complexity", "triability" , and "observability". Once again, Rogers stresses the systematic use of perceptions in his theory: "The individual's perceptions of the attributes of an innovation, not the attributes as classified objectively by experts or change agents, affect its rate of adoption" (Rogers, 2003, p. 223).

The first attribute, relative advantage, is the perception that the innovation is relatively better than what is currently available. Aspects of relative advantage include "a decrease in discomfort", "social prestige", "a saving of time and effort", and "immediacy of reward". It is intuitive that individuals want to be comfortable, respected, and rewarded for their efforts, but with Preventive Innovations the above dimensions may not be intuitive or realized in the short-term, such as with preventive health measures or climate change adaptive behaviors. This can be even more pronounced in another facet of relative advantage: the effects of Incentives. Rogers develops five forms of these: "adopter versus diffuser", "individual versus system", "positive versus negative", "monetary versus nonmonetary", and "immediate versus delayed". Incentives motivate actions in profound ways, but Rogers' view relates primarily to change agencies and agents who use them to *promote* diffusion and are themselves motivated by them as well. It is interesting to note that many leading economists today see incentives in a much broader sense as the principal motivators of people's actions. Levitt and Dubner (2005), for instance, use incentives to underpin decisions about everything from abortions and crime to teacher cheating: "There are three basic flavors of incentive: economic, social, and moral. Very often a single incentive scheme will include all three varieties" (p. 21).

The second attribute, compatibility, refers to how well the innovation matches the values and beliefs, needs, and past experiences of potential adopters. Rogers (2003) cites, "The more radical and disruptive an innovation and the less its compatibility with existing practice, the slower its rate of adoption (Walsh and Linton, 2000; Bower and Christensen, 1995)" (p. 247). This opinion parallels much of what Zhao, Pugh, Byers, and Sheldon (2002) described in their innovation domain in terms of the use of the dimension of distance. It is also closely related to the concept in social psychology of *confirmation bias*, which is "the tendency to notice and seek out things that confirm one's beliefs, and to ignore, avoid, or undervalue the relevance of things that would disconfirm one's beliefs" (Taylor, 2006, p. 52). Entwined in the concept of compatibility is the aspect of "innovation negativism", which is the degree or effect caused by the failure of a past innovation. The third attribute, complexity, as the name implies, contends with issues of comprehension and difficulty. The relative complexity of an innovation is a strong determinant of its adoption rate – with more complexity, comes slower/less adoption. The fourth attribute, trialability, is important because it rates the capacity of participants to experiment with an innovation before adoption. Those who are likely to adopt innovations more slowly have less need to experiment with them owing to the fact that many peers will have already adopted the innovation, allowing vicarious experiences and personal anecdotes to be related. The final attribute, observability, relates to the visibility of an innovation – if others can see successful uses of an innovation, they are more likely to attempt the same measures. Most innovations are technological and therefore have two components: hardware and software. As hardware use is easier to observe, it is usually adopted at a faster rate than innovations related to software (Rogers, 2003, p.259).

In the next section, the process involved in adoption is highlighted for, as Sophocles affirmed in 400 B.C. (as cited in Rogers, 2003), "One must learn by doing the thing, for though you think you know it, you have no certainty until you try" (p. 168).

4.2.2 The Process of Innovation

The five stages of the process of innovation-decisions are "knowledge", "persuasion", "decision", "implementation", and "confirmation". Rogers (2003) stresses that decisions about an innovation are not an instantaneous act, but a process that mainly applies to optional innovation-decisions that are made by individuals. The knowledge stage contains three types of knowledge: "awareness knowledge", "how-to knowledge", and "principles knowledge". These types are said to answer the following three questions about an innovation: "What is it?"; "How does it work?"; and "Why does it work?. How-to knowledge is "probably most essential to clients in their trial of an innovation at the decision stage" (Rogers, 2003, p. 173). The second part of the process, the persuasion stage, is governed by an individual's attitude. While the knowledge stage is mainly a cognitive process, the persuasion stage is an affective process related mainly to one's feelings which can be influenced by events, other individuals or groups. A noteworthy facet here is what is commonly called the "KAP gap": "knowledge, attitudes, practice" (Rogers, 2003, p. 176). This concept represents the reality that individuals do not always practice or do what they believe or know even with stated intentions.

In the decision stage, individuals can either accept (*adoption*) or reject (*rejection*) an innovation. As stated earlier, the chances of adoption are improved when it is possible to see an innovation in action and even more so when it can be tried out (Rogers, 2003). The picture becomes more complicated, however, during this stage because it is possible for someone first to accept and then later to reject an innovation and vice versa (see Figure 4.2 – graphics adapted from original). For instance, someone who first accepts an innovation may discontinue its use after some complication or neglect occurs during implementation. Likewise, someone may first reject an innovation and later adopt it after witnessing its use by others or by being able to try it out herself or himself.

The implementation stage occurs when an innovation is actually put into use. For the most part, this naturally follows in the case of an individual who has decided to adopt overtly, but this is not necessarily true for organizations (Rogers, 2003, p. 179). Often, innovations are actually changed or modified by users during implementation; therefore, Rogers later termed this "re-invention" along with its opposite dimension, Fidelity, and added considerable conclusions from various studies. The final, confirmation stage is necessary because individuals or organizations

sometimes have serious problems or "dissonance" after they have implemented an innovation (Rogers also has three categories of dissonance). If dissonance proves to be considerable, then "discontinuance" may occur.

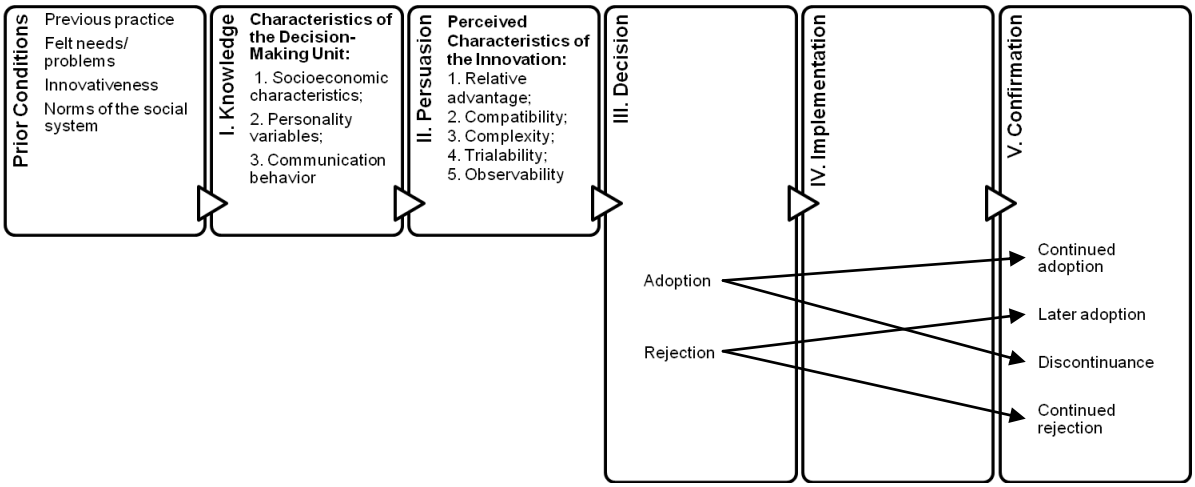


Figure 4.2. A model of the five stages in the innovation-decision process (Graphics adapted from Rogers, 2003, p. 170).

However, an argument has been raised with regard to the real existence of stages in the process of innovation-decision making. Rogers (2003) directly states in reply that the model is just that – an attempt to conceptualize the process to apprehend its mechanisms. He laments the difficulty of measuring the distinction between stages, particularly because "[m]ost diffusion research (and most social science research) is variance-type investigation" gathered "from one-shot surveys" (p. 196). He further suggests:

> In order to explore the nature of a process, one needs a dynamic perspective to explain the causes and sequences of a series of events over time. Data-gathering methods of process research are less structured and might entail using in-depth personal interviews…. The scarcity of process research on the innovation-decision process is a basic reason why we lack definitive understanding of the degree to which stages exist. (pp. 196-197)

There is considerably more elaboration of the innovation-decision process such as the "hierarchy of effects", "stages-of-change", "categorizing communication channels", "the Bass forecasting model", and the "innovation-decision period"; however, these areas are not pertinent to this discussion and are not clarified further (Rogers, 2003, pp. 198-218).

4.2.3 Adopter Categories

Perhaps the most widely quoted area of Rogers' theory and arguably the most important is the classification of adopter categories, which includes "innovators", "early adopters", "early majority", "late majority", and "laggards" (Rogers, 2003, pp. 282-287). Before Rogers' 1962 nomenclature and classification based upon the S-shaped curve of normal distribution in quantitative analysis, a disarray of methods and descriptions made diffusion research comparisons impossible (Rogers, 2003). On the basis of *innovativeness*, Rogers (2003) believes his categories are both "exhaustive" and "mutually exclusive" (p. 280). However, he also argues that these categories are "ideal types" which are conceptual abstractions based on numerous examples (Rogers, 2003, p. 281). Although there are important differences between categories, there are no real clear breaks and therefore innovativeness can be practically measured only on a continuum.

The first group, innovators, as the name implies, are venturesome, more "cosmopolite", and more comfortable with uncertainty (as is discussed briefly in Section 10.7). Innovators play gate keeping roles for innovations not because they are respected by others, but because they are willing to take risks and implement new ideas. On the other hand, early adopters, the second group, have the highest degree of opinion leadership among all the categories because they are respected for recognizing which new ideas are most feasible and beneficial for a social group. If an early adopter adopts an innovation, then this may help "trigger the critical mass", as many others will be likely to be persuaded by early adopters' approval (Rogers, 2003, p. 283). Those who are part of the third group, early majority, are deliberate in their decision making and may be said to follow the creed: "Be not the first by which the new is tried, nor the last to lay the old aside" (Alexander Pope, 1711, as cited in Rogers, 2003, p. 267). The early majority make up one third of the members in a system. The fourth group, the late majority, is, in a word, skeptical.

They must see obvious signs that an innovation has been accepted as well as be persuaded before they take any action to adopt. Rogers emphasizes that the late majority often lack economic means and therefore are naturally more cautious with their investment in innovations. Finally, the last group, laggards, are more traditional, the most "localite" and isolated from the social network, and look heavily to the past for a reference point in making decisions. As with the late majority, laggards lack financial means and are not willing to take any risk with new innovations.

4.2.4 Characteristics of Adopter Categories

Although there are numerous variables that relate to the classification of adopters, Rogers (2003) generalizes them into three general areas: "socioeconomic status", "personality values", and "communication behavior" (p. 287). Rogers (2003) relates these areas through generalizations reached from "voluminous" (p. 287) studies on the diffusion of innovations. Under socioeconomic status, those who are likely to be early adopters are usually more educated and literate, are more social and upwardly mobile, and usually possess "larger-sized units"– meaning they are richer and have more status, so their farms, schools or companies are larger than later adopters (Rogers, 2003, p. 288). The category of personality variables shows that early adopters are generally more esteemed people (this may account for many of the complaints about the pro-technology bias in Rogers' theory): they are more empathetic, less dogmatic, more intelligent, less fatalistic, and more favorable toward uncertainty, change, and science. Moreover, they have higher aspirations than later adopters. In relation to communication behavior, early adopters are generally more social, interconnected in their social systems, and more "cosmopolite" than later adopters – "Cosmopoliteness is the degree to which an individual is oriented outside a social system" (Rogers, 2003, p. 290). Moreover, they seek out and are exposed to more information through mass media communication channels and possess greater opinion leadership. These characteristics are applied to the current study in Section 7.3.7 below.

4.3 General Tenets of Grounded Theory

> We believe that the discovery of theory from data – which we call *grounded theory* – is a major task confronting sociology today, for, as we shall try to show, such a theory fits empirical situations, and is understandable to sociologists and layman alike. Most important, it works – provides us with relevant predictions, explanations, interpretations and applications. (Glaser & Strauss, 1967, p. 1, *emphasis in original*)

The above sentiments express the prominence of the relationship between data and theory in grounded theory in its original conception by Glaser and Strauss (1967). At the time, it was a reaction against the prevalent method of research based on more deductive theories which were then explored using data either to verify or to dispute their claims. Grounded theory, however, is not motivated by the desire to verify deductive theories – it is an exploratory method that follows the evidence by iterative and tireless comparisons to generate theory from the ground up. Somekh and Lewin (2005) believe that this distinction and its relevance to qualitative research make grounded theory "probably the most influential approach developed in the twentieth century" (p. 15). This may be in large part due to the openness of grounded theory to using both quantitative and qualitative data as the substantiation for generating theory – not one used to test the other, "but both used as supplements, as mutual verification" (Glaser & Strauss, 1967, p. 18). One gets the impression from reading Glaser and Strauss' (1967) book that they had two overarching purposes in originating grounded theory: one scientific and one social. Scientifically, they could see the inherent flaws in many unfounded theories of the time and naturally saw empirically-based investigation as a remedy. Socially, they likewise realized that the dominance of incontestable "grand" theories by "great men" greatly hindered not only progress but also general understanding by lay people (Glaser & Strauss, 1967, p. 10). They therefore suggested that all theories be tested against grounded evidence for practical *fit*, and that they should be expressed in terms that are "sufficiently understandable to be *used*" by researchers and lay people alike (Glaser & Strauss, 1967, p. 11; *emphasis added*).

Strauss and Corbin (1998) stand upon the above foundations, but emphasize more scientific rigor in the application of grounded theory (a major point of contention with Glaser's later versions –

see Section 4.3.5 below). However, in their outline of the principles to be followed, Strauss and Corbin illustrate both critical thinking and creative flexibility by quoting Patton (1990) who called attention to both "the science and the art of analysis" with a list of behaviors that are beneficial to the researcher:

> (a) being open to multiple possibilities; (b) generating a list of options; (c) exploring various possibilities before choosing any one; (d) making use of multiple avenues of expression such as art, music, and metaphors to stimulate thinking; (e) using nonlinear forms of thinking such as going back and forth and circumventing around a subject to get a fresh perspective; (f) diverging from one's usual ways of thinking and working, again to get a fresh perspective; (g) trusting the process and not holding back; (h) not taking shortcuts but rather putting energy and effort into the work; and (i) having fun while doing it. (Patton, 1990, pp. 434-435, as cited in Strauss & Corbin, 1998, p. 13)

It is important to keep in mind the overarching principles expressed above when applying the exacting techniques that Strauss and Corbin (1998) demand in their conception to avoid inflexibility and dogmatic adherence – "if analysts understand the logic behind our procedures and if they develop self-confidence in their use, then they should be able to apply them flexibly and creatively in their own materials" (p. 14). This background helps to consider the process of applying grounded theory which is discussed below.

4.3.1 Description, Conceptual Ordering, and Theorizing

The bases of description are observation and recognition. Everyone notices things around them such as objects, people, places, and events, although what they notice and what they ascribe to them can sometimes vary significantly. Research and theories rely on description which is governed by purpose, intended audiences, and "the selective eye of the viewer (Wolcott, 1994)" (Strauss & Corbin, 1998, p. 17). This unavoidably places researchers (and their selective judgments) at the center of any research regardless of how objective it may appear. From the initial decision on what area(s) to study, through the selection of methodology and analysis, to the final write up, researchers make judgments which greatly affect the results in profound ways.

It is for this reason that Strauss and Corbin (1998) attempt to make each step in grounded theory as explicit as possible (see Section 4.3.5 below) and encourage students of the theory to do the same.

Another important technique of grounded theory is the process of "conceptual ordering" which seeks to identify dimensions and properties "to differentiate items between and within classes and thus to show variation along a range" (Strauss & Corbin, 1998, p. 19). That is to say, conceptual ordering is an organizing technique which uses description to categorize data based on their dimensions and properties. These dimensions and properties are, moreover, considered carefully to arrange data along a range or continuum within each category. Put another way, researchers analyze data into groups and at the same time order them within their groups; however, they are also doing one more task simultaneously – theorizing. Glaser and Strauss (1967) used the expression "constant comparison" to express this process of analysis which is working on two levels at once – the empirical and the conceptual. It is important to recognize the distinction between Glaser and Strauss' (1967) specific meaning of constant comparison, whereby detailed comparison and theorizing transpire simultaneously, and the more general use often attributed to them by other researchers. In this more general understanding, the general process of iterative comparisons merely re-checks new data against old categories to ensure their continued relevance (once again, this use often fails to engage the interplay between theory and data, particularly with regard to theory generation).

Theory generation in grounded theory is a lot of work; it is not a simple hypothesis of how and why a phenomenon occurs tested against relevant data. It is, above all, a systematic and painstaking building of relationships one by one that combine to form larger patterns until a conceptual model can be established which seems to explain adequately the phenomenon or situation at hand. Strauss and Corbin (1998) state more expressly that:

> *Theory denotes a set of well-developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social, psychological, educational, nursing, or other phenomenon.* (p. 22; *emphasis in original*)

Theories not only help us to explain what is happening around us, but also help us to predict and take action to influence or control it in some way. The operative dimensions in theories are abstraction and practicality, which are inversely related. The more abstract a theory is, the more scope, generality or applicability it has – however, the less practical application or precise the fit. Glaser and Strauss (1967) used the terms "substantive" and "formal" (pp. 32-34) to refer (respectively) to theories which were more applicable to a specific situation and those that have a wider scope of influence. Researchers employing grounded theory procedures are free to pursue either of the two, depending on their aims and goals. The overriding theme in grounded theory is one of the construction of theory using procedures that systematically open up and relate concepts from and within the data.

4.3.2 Coding Procedures

There are three types of coding in Strauss and Corbin's (1998) model of grounded theory: "open", "axial", and "selective". Although it is necessary to begin with open coding (to start "opening up" the data [Strauss & Corbin, 1998, p. 102]), these three can and should be used interchangeably when and as needed. (This can be applied to all areas of grounded theory – the interplay and simultaneous use of procedures continues until a theory is established through "theoretical saturation"– discussed below in Section 4.3.3) Open coding, as the name implies, is the "opening up" of data; it is an analytical process to discover concepts within the data (Strauss & Corbin, 1998, p.103). The concepts which emerge from the close inspection of paragraphs, sentences, and even words are labels which describe significant phenomena within them. The understanding and use of language are paramount to the process, and it is the researcher's job to recognize and represent accurately the participant's perspective and intention in its use. Once concepts are recognized, they are compared with other concepts to help classify similarities and differences. This is done using properties, or "the general or specific characteristics or attributes" and dimensions, or "the location of a property along a continuum or range" (Strauss & Corbin, 1998, p. 117). This is where the science and art of analysis come to bear on the phenomenon. Strauss and Corbin (1998) offer suggestive techniques such as "line by line analysis" (p. 119) but do not advocate one particular method over another.

Moving up conceptually, axial coding involves comparisons between categories to link their properties and dimensions. It is an "analytic tool devised to help analysts integrate structure with process" (Strauss & Corbin, 1998, p. 123). Axial coding seeks to use inductively the context and phenomenon to explain deductively the relationships or processes involved. During open coding, concepts emerge and are then placed within categories and subcategories until properly positioned in relation to other concepts. In axial coding, subcategories are compared to their parent categories to illuminate significant relationships and make stronger connections. Axial coding is necessary because "[i]f one studies **structure** only, then one learns **why** but not **how** certain events occur. If one studies **process** only, then one understands **how** persons act/interact but not why" (Strauss & Corbin, 1998, p. 127, **emphasis in original**).

The last coding procedure, selective coding, is the process to establish the overriding pattern(s) between categories as the basis of theory. It involves refining and linking categories as well as purposively choosing samples to fill in gaps in and between categories. The role of memos and diagrams in all stages of coding is necessary, but particularly useful in this type of coding (see Section 6.2). Researchers should eventually become aware of a central category during this process which can explain or relate all the other categories together. An important aspect of developing a central category is the degree of *density* in it and other lesser categories. A dense category is one (within reason) in which "the salient properties and dimensions…have been identified, thereby building in variation, giving a category precision, and increasing the explanatory power of the theory" (Strauss & Corbin, 1998, p. 158).

4.3.3 Theoretical Sampling and Theoretical Saturation

"Theoretical sampling" (Strauss & Corbin, 1998, p.73) is a form of purposeful sampling and therefore is not concerned with issues of representativeness found in most other forms of sampling. As stated above, the elaboration of the dimensions and properties of categories is key to developing dense grounded theory; hence theoretical sampling is used to find answers to questions such as: "Why is it there? Why is it not there? What form does it take?, etc. " (Strauss & Corbin, 1998, p. 214). At the beginning of a study, researchers make decisions about where and how they hope to find needed data; however, during the process of coding come to realize

where they lack the data to answer important questions about the developing categories and their properties/dimensions. They then purposively collect more data from sources that will be likely to help them to elaborate weak or underdeveloped categories. This process continues until theoretical saturation is reached. Theoretical saturation means that the collection of new data does not reveal any new categories or dimensions/properties. Perhaps tellingly, this process is analogous to Dewey's (1910) description of how children learn: "Objects are sucked, fingered, and thumped; drawn and pushed, handled and thrown; in short, experimented with, till they cease to yield new qualities" (pp. 31-32). Glaser and Strauss (1967) suggested that the researcher go "out of his way to look for groups that stretch [the] diversity of data as far as possible" (p. 61), but of course there are often practical limits of money and time to consider. Strauss and Corbin (1998) echo that saturation is a matter of degree, stating that it is "more a matter of reaching the point in the research where collecting additional data seems counterproductive; the 'new' that is uncovered does not add that much more to the explanation…or the researcher runs out of time, money, or both" (p. 136). Realistically, then, researchers reach saturation when they are reasonably comfortable that their categories and theory are sufficiently dense.

4.3.4 The Role of Memos

Memo writing is the process of explicitly stating one's thoughts and opinions for the purpose of communicating them to someone else. In grounded theory, memos are much more involved representations of the researcher's ideas meant to aid further analysis. Grounded theory memos can be divided into three categories: "code notes", "theoretical notes", and "operational notes" (including "diagrams") (Strauss & Corbin, 1998, pp. 217-241). Memos are used throughout the research and provide an account of the progression of the researcher's thoughts on emerging concepts, categories, and theory. They necessitate working at the level of concepts rather than raw data which is crucial to developing theory. Much like a detective who keeps a log of significant clues and insights in order to solve a mystery, the researcher uses memos to explicate his or her thoughts which can have a synergistic effect and lead to important discoveries. However, Strauss and Corbin prescribe a strict regimen of writing memos with dates, labels (code notes, theoretical notes, and operational notes), titles, and references to which area of the data they directly apply. This formality aids in forming categories and schemes that lead to

theory formation and enable the researcher to "write on each topic in detail as well as on the integrated whole" (Strauss & Corbin, 1998, p. 240). Nevertheless, as with other techniques in grounded theory, Strauss and Corbin explicitly state that the analyst will naturally develop her or his own style and techniques based on which are most comfortable and efficient to use.

4.3.5 Grounded Theory Controversy

> As a research method, grounded theory is often heralded as revolutionary in the history of the qualitative traditions. Yet, at the same time, it is the most frequently discussed, debated, and disputed of the research methods. (Walker & Myrick, 2006, p. 547)

In "The erosion of a method: examples from grounded theory", Greckhamer and Ljungberg (2005) state that "[i]t can be claimed that Glaser and Strauss created a functional method but they did not furnish it with clear and consistent epistemological or theoretical foundations" (p. 740). If this is true, then it might help explain the friction between Glaser and Strauss and their subsequent division over what constitutes grounded theory. The main issue of debate between the two relates to the level of intervention by the analyst during early coding. Glaser (1992) argues that Strauss and Corbin are being too heavy handed in their early coding by applying dimensions to categories which force the data into categories which more closely represent the researcher's deductions than the evidence from the raw data. It is more likely though that "Strauss and Corbin might simply be articulating some of the natural processes we use when we compare things" (p. 553) rather than following Glaser's more intuitive style (Walker & Myrick, 2006). As to the larger issue of Greckhamer and Ljungberg (2005)'s claim that grounded theory lacks obvious epistemological or theoretical foundations, they seem to contradict themselves in their writing by stating "These authors express the usefulness of grounded theory techniques, but they do not agree with Glaser and Strauss's epistemological and theoretical foundations (Charmaz, 2000, 2002; Charmaz & Mitchell, 2001)" (p. 734). If Glaser and Strauss have no epistemological and theoretical foundations, one wonders what Charmaz (and Charmaz and Mitchell) are not agreeing with. Moreover, Charmaz and her colleagues argue that her conception of grounded theory is more valid because it is constructivist in nature, unlike Glaser and Strauss (and Strauss and Corbin in particular) who are overly objectivist and positivist.

However, Charmaz's (2000) application of grounded theory is at best inconsistent with her claims to constructivism – for instance, she insists on the use of structured analytical steps and "detailed interview guides" (p. 676) rather than allowing participants to co-construct meanings as would be expected with constructivism.

4.3.6 The Marriage of Diffusion of Innovations Theory and Grounded Theory

Chapter Three of *Diffusion of Innovations* (Rogers, 2003) entitled "Contributions and criticisms of diffusion research" is underpinned by the need for qualitative methods to overcome the theory's pro-technology and individual-blame biases. Further, Rogers (2003) cites the lack of any real critical viewpoints as "the greatest weakness of diffusion research" (p. 106). Throughout the chapter, he pines for a diffusion researcher who "could adequately understand the individual's perceptions of the innovation and of the individual's situation" (p. 114). At one point, Rogers (2003) seems even to be specifically advocating a grounded theory method of investigation when he suggests:

> Even if a successful innovation is selected for investigation, a diffusion scholar might also investigate an unsuccessful innovation that failed to diffuse widely among members of the same system during the same time frame. (p. 113)

This is quite similar to theoretical sampling discussed above in Section 4.3.3. From this and other information found throughout the book, no hindrances or inconsistencies were discovered in employing an independent grounded theory method to offer a more holistic and critical viewpoint on Rogers' theory.

On the other hand, some may at first consideration see a paradox between the use of grounded theory, where there should be no pre-existing theory, and a framework based on a substantial theory such as Rogers'. However, this is exactly why the biases mentioned above persist – unless researchers are able to divorce their method from Rogers' (2003) framework, overcoming the inherent biases is impossible. Moreover, the warrants for such a design far outweigh any inconsistencies, and are in fact even more in keeping with the intent of grouded theory than many well-known grounded theory studies mentioned above (Charmaz, 2000, 2002; Charmaz &

Mitchell, 2001). Glaser and Strauss (1967) provide the basis for this argument by stating that, "as John Dewey has clarified for us, grounded theory is applicable *in* situations as well as *to* them" (p. 249, *emphasis in original*). They were referring to the fact that lay people should be able to apply grounded theory in their own situations, even if it is the "professionally trained sociologists" (p. 249) who develop it – or perhaps qualified doctoral students (Glaser & Strauss, 1967). Moreover, they more explicitly acknowledge that, "although we consider the *process* of generating theory as related to its subsequent use and effectiveness, the *form* in which the theory is presented can be independent of this process by which it was generated" (Glaser & Strauss, 1967, p. 31, *emphasis in original*). Therefore this evidence suggests that, as long as grounded theory principles are adhered to, any resultant theory can subsequently be applied to other theories without any reservations. Furthermore, when specifically asked about the implications of bringing any theoretical baggage or framework into a grounded theory investigation, Strauss and Corbin (1998) emphatically state:

> Certainly, if it is the analyst's choice, then the analytic procedures we offer in this text can help any analyst discover deep and hidden meanings, develop new interpretations, or open up 'black boxes' (ambiguous concepts) in his or her favorite theories. Again, it is the difference between interpreting everything in terms of a theory (laying preassumed meanings and relationships on data) and beginning with data and then seeing where they lead. More specifically, there is a basic tenet of the methodology that is relevant to the question. *All* assumptions of preexisting theories are subject to potential skepticism and, therefore, must be scrutinized in light of one's own data. (p. 292, *emphasis in original*)

Therefore, for Rogers, a grounded theory methodology helps provide a critical viewpoint to help overcome inherent biases and for Strauss and Corbin, a subsequent evaluation of results with diffusion of innovation theory tenets equates to one more set of data for comparison that can lead only to more validation and applicability of the theory.

4.4 Summary

Chapter Four presented the methodological underpinnings of the study, including Rogers' (2003) diffusion of innovations theory and grounded theory. First considered were the basic tenets of Rogers' theory which were seen as well organized and elaborate. It was established that this theory is based on a careful analysis of many studies on the diffusion of innovations and, as such, is very thorough in its coverage of the various aspects and dimensions involved. Rogers' theory has explanatory power over the innovation, process, and innovator, including the characteristics of innovators. The attributes of innovations were then given, including relative advantage, compatibility, complexity, triability, and observability. These attributes relate mainly to the qualities of the innovation in terms of fit with needs and abilities as well as the need for demonstrations and trials. The process of innovation is broken down into five stages: knowledge, persuasion, decision, implementation, and confirmation. It was posited that potential innovators move through stages from learning about the innovation, being influenced through deciding whether to incorporate it and finally implementing and confirming its use. These stages were emphasized as a conceptual model meant to elucidate the process rather than a literal progression with clearly demarcated boundaries. Next, adopter types were shown to include innovators, early adopters, early majority, late majority, and laggards. The characteristics of adopters which are used to classify adopter categories consist of socioeconomic status, personality values, and communication behavior. These characteristics mainly cover a person's personality and her or his social behavior and level.

Next, the principles of grounded theory were described. Grounded theory's roots were found to be a reaction to the socio-deductive method of research popular at the time. In creating the theory, Glaser and Strauss (1967) were attempting to establish a new method of study based not on deductions and disconnected theories, but on an inductive, iterative process of theory development based on empirical facts. Some distinctions were made between Glaser and Strauss' (1967) original conception and the later version put forward by Strauss and Corbin (1998). These mainly involved the rigor used in the coding process and theory development. It was also shown that, as with the original conception, Strauss and Corbin (1998) highlight researcher flexibility and creativity in their version of the method. Description, conceptual ordering, and theory

generation were then illustrated. As a subjective process, description in grounded theory considers the perspective and intent of the participant when assigning meanings. This means that the researcher is sensitive to the interpretive value that the process entails. When conducting conceptual ordering, the researcher then is careful to make detailed comparisons between developing concepts in order to code them and compare them in relation to their properties and dimensions. Theory is then generated gradually as the concepts begin to form a tapestry of interconnecting qualities and relationships which describe the process involved.

The coding process was shown to have three components: open coding, axial coding, and selective coding. Open coding breaks open the data into discrete pieces to reveal unique concepts. The properties and dimensions of these concepts are then compared and grouped based on similarities and differences. The next component, axial coding, explores more carefully the conceptual relationships between and within categories to begin forming storylines or theoretical relationships between them. This process allows the researcher to answer both the how and the why of emerging conceptual relationships. The final coding component is selective coding, whereby the researcher begins to 'put it all together' – meaning that the overall structure of the theory is first established and examined for gaps, inconsistencies, and overlaps. It is at this point that the researcher makes decisions about new areas of data collection needed (although this can conceivably take place earlier as well). This is referred to as theoretical sampling – the purposeful selection of new data to illuminate problem areas in the existing data. This process continues until the researcher realizes that no new insights are being made through the introduction of new data (or when the researcher runs out of time and/or money) – termed theoretical saturation. This is when the researcher is reasonably comfortable and confident that her or his theory sufficiently explains the phenomenon under investigation and that it is also a dense representation of the relationships involved. The importance of memos in grounded theory was also shown by pointing out their flexible but meticulous use throughout the process.

Section 4.3.5 brought attention to the rift that developed between Glaser and Strauss over the level of involvement of the researcher during early coding. While Glaser sees Strauss and Corbin's (1998) use of axial coding as forcing the data rather than allowing them to emerge, Strauss believes that its use helps the researcher to expound methodically the emergence of

theory. It was suggested that the dispute may simply be nothing more than Strauss and Corbin being more explicit about the thinking process involved in all grounded theory analysis. Finally, this section considered Charmaz and her colleagues' (2000, 2001, 2002) interpretations of grounded theory only in passing, as inconsistencies seem to render it inherently or epistemologically flawed.

Chapter Four concluded by providing the justification for employing Rogers' (2003) diffusion of innovations theory alongside grounded theory. It was clearly shown that Rogers suggests the need for diffusion scholars to utilize qualitative methods to resolve issues of bias and complacency in his method. Likewise, Glaser and Strauss (1967) and Strauss and Corbin (1998) make it apparent that the use of grounded theory as an encapsulated process is in no way disturbed or lessened by subsequent applications of the findings to other theories such as that of Rogers.

Chapter Five: Research Methods and Data Collection Techniques

5.1 Introduction

Chapter Five explains the design of the study by first reviewing the justification for choosing methods and techniques. This is followed by an ethical perspective of the issues. The data collection process is then outlined (theoretically and practically) for each strand of the study. Next an account of how the data have been managed in each of the various techniques employed is illustrated. The last section presents a view on the use of technology in the study and the insights that the researcher gained through personal use in the study. Chapter Five ends with a brief summary of the main points in each section.

5.2 Choosing Methods

As discussed in the second half of Chapter Three and throughout Chapter Four, the general decision to choose Rogers' (2003) diffusion of innovations theory evolved from the study of the barriers to and enablers of technology integration. Zhao, Pugh, Sheldon, and Byers' (2002) findings as well as the thoughts of authors such as Becker (2000), Cuban (1997), and Watson (2001) have been shown to offer valuable insights into the problem; however, all give the impression that a process or systems view would be a more likely solution to the multitude of variables encountered in this area. After further investigation for such a view, diffusion theories seemed to be the best match, with Rogers' (2003) diffusion of innovations theory in particular accounting for the widest array of variables involved, including aspects of the innovator, the innovation, and the process. However, a close reading of Rogers' theory revealed a pro-technology bias and a general lack of critical viewpoints. It was also overly-reliant on survey techniques, which Rogers acknowledged and suggested might be remedied by data collection and analysis techniques that would help researchers to consider more fully the perspective and situation of the participants (Rogers, 2003). A case study was then decided on owing to its ability to consider "a detailed examination of one setting, or a single subject, a single depository of

documents, or particular event" (Bogdan & Biklen, 1992, p. 54). This is not to say, however, that case studies represent a particular method of research. I share the view of Wolcott (2001) that case studies are more accurately regarded as a form of reporting or defining of boundaries rather than one distinct method of research as other scholars have expressed (Merriam, 1998; Stake, 2010; Yin, 1994).

The issue then became to choose a method of case study research that paralleled my own ontological and epistemological roots. I needed a method that represented an open-minded and objective attempt to explore the phenomenon without hindrance or 'theoretical baggage' – one that would allow the researcher to follow clues much like a detective until concepts led to patterns and patterns led to a theory or theories. It had to have the ability to allow for individual constructions of reality – in particular, being able to represent the perspective of individual teachers. Furthermore, this method needed to be logical, explicit, and rigorous so that any collection and analysis techniques could be easily communicated in the write-up along with the findings. Finally, it had to allow participants to have an active role in negotiating the representation of perspectives and events to help overcome biases inherent to the researcher. On all counts, a grounded theory method was up to the task. In particular, the version promoted by Strauss and Corbin (1998) that is underpinned by a constructionist view of theory development which "acknowledges 'multiple realities' or multiple ways of interpreting a specific set of data" was the ideal choice (Corbin & Holt, 2005, p. 49). Therefore, with this framework established for the study, all that remained was to choose specific techniques that best addressed the research questions. These are discussed below and illustrated in Table 5.1.

5.3 Choosing Techniques

Most studies on technology in education rely on various combinations of a limited set of similar techniques – namely, interviews, observations, and surveys (Minishi-Majanja & Ocholla, 2004; Park & Son, 2009; Pelgrum, 2001; Pennington, 2004; Zhao, Pugh, Sheldon & Byers, 2002). Interviews allow the feelings and thoughts of participants to be freely voiced, especially with more 'open' styles such as semi-structured interviews. One form of this kind of technique is

think-aloud or stimulated recall interviews which reveal the thoughts in action and reflection of the participants toward their teaching. Observations permit the researcher to observe the actions of participants, while surveys allow the opinions of larger numbers of participants to be represented and easily quantified for analysis. However, the use of any one of these techniques alone would provide an incomplete picture and it is only through their combination that the researcher can be reasonably assured of adequately covering the phenomenon at hand. This assumes, however, that the aims and related research questions also cover the scope of the phenomenon sufficiently as each question or aim should form a logical connection to each technique employed to answer it most effectively. Table 5.1 highlights the connection of this study's research questions with the data collection and analysis techniques employed (details of the theory and use of each technique are given below in Sections 5.4 to 5.9).

Table 5.1
Matching Aims with Data Collection and Analysis Techniques

Aim	**Data collection technique**	**Data analysis technique**
Provide background on the relationships which exist among teacher background, beliefs, and classroom practices *(Research Question 1)*	Semi-structured interviews, stimulated recall interviews	Open coding, axial coding, selective coding, theoretical sampling
Identify the main hindrances to the integration of technology in the classroom *(Research Question 2)*	Semi-structured interviews, survey questionnaire, observations, stimulated recall interviews	Open coding, axial coding, selective coding, theoretical sampling
Link findings with Rogers' (2003) diffusion of innovations theory *(Research Question 3)*	Survey questionnaire, literature review, cross-comparison of findings	Iterative evaluation, code verification, theoretical comparison
Reveal insights into English teaching methodology and practices as they apply to the use of technology in tertiary language programs	Semi-structured interviews, survey questionnaire, observations, stimulated recall interviews	Open coding, axial coding, selective coding, theoretical sampling

5.3.1 Issues of Validity and Reliability

Case studies are often criticized for their lack of validity and reliability, although they allow researchers to "retain the holistic and meaningful characteristics of real-life events" (Yin, 2009, p. 4). Generally speaking, validity in research is the measure of how accurately the research methodology and techniques (and therefore the findings) match the situation or phenomenon under investigation. Reliability demonstrates the degree to which the methodology and techniques used in a study "will yield similar data from similar respondents over time" (Cohen, Manion & Morrison, 2007, p. 146). The larger issue, however, is to what extent positivistic measures of validity and reliability apply to qualitative studies such as case studies (Silverman, 1998). The widely-held belief is that, while they are important to any study, it is equally important not to expect these quantitative measures to transfer well to qualitative studies:

> Indeed Maxwell (1992) argues that qualitative researchers need to be cautious not to be working within the agenda of the positivists in arguing for the need for research to demonstrate concurrent, predictive, convergent, criterion-related, internal and external validity. (Cohen, Manion & Morrison, 2007, p. 134)

In this vein, Riege (2003) relates four sets of tests for promoting quality in case studies put forth by various qualitative research scholars (e.g., Hirschman, 1986; Miles & Huberman, 1994; Robson, 1993). These tests relate techniques that correspond to positivist concepts of construct validity, internal validity, external validity and reliability (see Figure 5.1– graphics adapted from original). Riege (2003) further relates a number of techniques that may be used in case studies to improve all four areas. In Figure 5.2 (graphics adapted from original), aspects of this research, as they apply to each of Riege's tests, have been indicated on the right column next to each test.

Having a high degree of validity and reliability (credibility and dependability) is vital to any research to help establish trustworthiness and therefore it is something that all qualitative researchers must concern themselves with (Miles & Huberman, 2002; Seale & Silverman, 1997). However, the researcher, not the research tool, might be the crucial factor in establishing

"authenticity" or "fidelity" (Blumenfeld-Jones, 1995; Bogdan & Biklen, 1992; Cohen, Manion & Morrison, 2007; Hammersley & Atkinson, 1983; Lincoln & Guba, 1985).

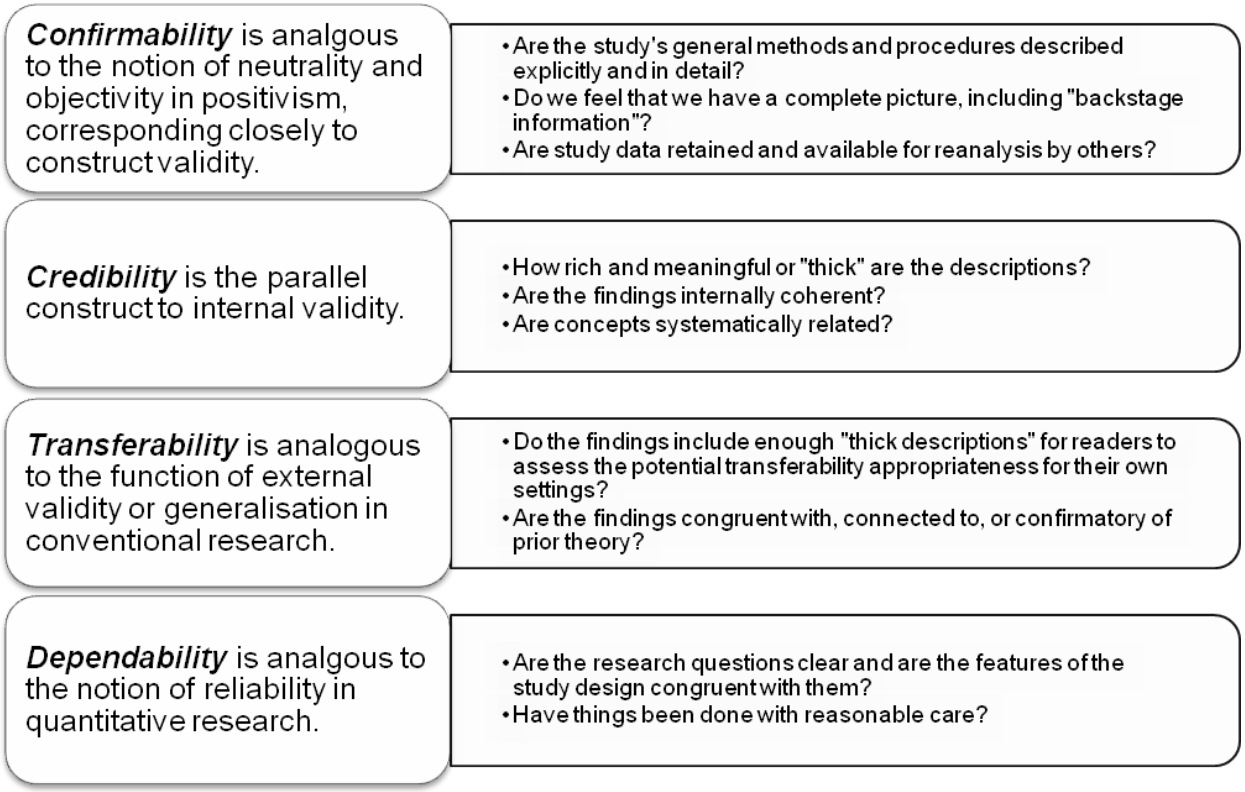


Figure 5.1. Four tests for establishing quality in qualitative research design (graphics adapted from Riege, 2003, pp. 78-79).

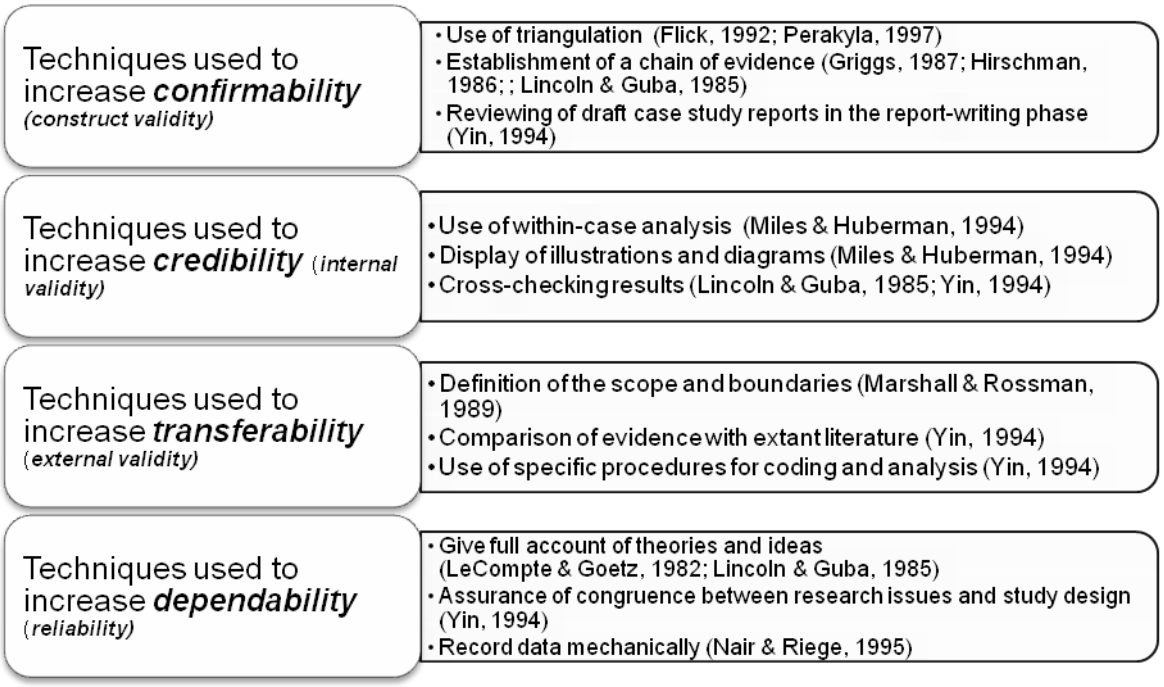


Figure 5.2. Techniques used by the researcher to increase the soundness of the case study (graphics adapted from Riege, 2003, pp. 82-84).

5.3.2 Ethical Considerations

Another of the challenges for researchers is to keep in mind the perspectives and concerns of participants in their research. This may seem more obvious in a case study such as this which is attempting to do just that (study the perspective of participants); however, it is prudent to make clear the principles of ethical behavior followed in both the design and the implementation of any research. Smith (2000) offers five ethical guidelines to help in this regard: "I. Respect for Persons and Their Autonomy; II. Beneficence and Nonmaleficence; III. Justice; IV. Trust; and V. Fidelity and Scientific Integrity" (p. 5). Table 5.2 shows elements of both the design and the implementation of the study which address each of these principles.

Table 5.2 *Ethical Principles Addressed in the Design and Implementation of the Study (graphics adapted from Smith, 2000, p.5)*

Ethical Principle	**Principle in Design**	**Principle in Implementation**
I. Respect for persons and their autonomy	Informed consent/confidentiality	Analysis review/ write-up review
II. Beneficence and nonmaleficence	Participant research/ semi-structured interviews	Sensitivity/ explicit questioning
III. Justice	Constructivist methodology/ confidential access for complaints	Analysis review/ write-up review
IV. Trust	Informed consent/ confidentiality	Analysis review/ write-up review
V. Fidelity and scientific integrity	Constructivist methodology/ mixed techniques	Narrative write-up/ "thick description"

Overall, principles of ethics in research are guided by a general ethical stance – either "deontological" or "utilitarian" (Sales & Folkman, 2000, p. 4). That is to say, researchers generally follow the belief that all actions should be guided by morals and obligations which are not relative to the results or 'means' of the study (deontological); or, as John Stuart Mill (1906) believed, actions are decided after a careful consideration of the balance between the benefits and the costs to all involved (utilitarian). Although it would be ideal to be able to follow the former, the latter is more practical given the complexities involved in social research. Therefore an indispensible method of promoting ethics in social research such as this is to be as explicit as possible during all stages of the study, both in actions and in the write-up.

5.4 Research Design

After the blueprint of the study was decided on and formalized, a formal letter of intent was handed out to all potential participants during a pre-semester workshop at Park University (a pseudonym). This letter stated the intent, general procedures, and ethical issues including consent, anonymity, and confidentiality (see Appendix C). In the following semester, the study proposal and all consent forms were submitted along with other appropriate paperwork necessary

to the University of Southern Queensland Ethics Committee for ethical clearance consideration. Immediately after this was granted, a final letter of consent by the general English department director was sought and acquired whereby the first strand of the study was begun in earnest. Overall, the mixed-techniques design involved four strands of data collection: interviews, a survey questionnaire, and observations with subsequent follow-up interviews (see Table 5.3). Each strand is outlined below while the details of each are further described in Sections 5.5 to 5.9.

Thirteen semi-structured interviews were first conducted among the full-time instructors (16) of the general English program of Park University (a women's university, which is considered as one of the top-tiered universities in Seoul, Korea), which constituted the main source of data for the study. It should be noted that the amicable interpersonal relationships in the workplace at Park University were such that nearly all full-time instructors showed an interest in taking part in these initial interviews (and those who did not eventually opted out primarily for logistical reasons). All interviews were digitally recorded (MP3) to aid transcription which was completed exclusively by the researcher. Questions for the interviews evolved with each subsequent interview from the original construction which was itself derived from informal discussions with the participants and, as reviewed above, from the existing literature (see Appendix D on the initial interview questions). In the second strand, a survey questionnaire was developed by the researcher which reflected the information provided by participants during the interviews along with ten additional items to aid adopter categorization using Rogers' (2003) diffusion of innovations theory. The survey questionnaire was first piloted by a select group of instructors from other institutions (n=3), then proofed by the researcher's supervisors and finally administered to all the full-time teachers (n=16) and part-time teachers (n=33) in the department. The response rate was 68% or 34 of 49, with 14 of 16 full-time instructors and 20 of 33 part-time instructors responding (full-time instructors included a mix of mostly native English speakers and native Korean speakers, while all part-time instructors were native Korean speakers).

In the third strand, data from the thirteen interviews with the full-time teachers were used to select a small sample (initially four) in order to conduct classroom observations and follow-up interviews. This decision was based on the qualities of the participants revealed during

interviews in relation to a complex set of emerging concepts (discussed below in Section 5.5). Five teachers eventually took part in this strand of the research through two classroom observations of lessons. Participants were allowed to choose the lessons but were instructed to choose a typical and exemplary lesson in terms of their technology use. Lessons were recorded using a digital video camera (MPG), while the researcher took notes on significant events (see Appendix E).

Table 5.3
Research Timeline

April-June 2007	Initial interviews and analysis conducted.
April-August 2007	Interview data analysis used to develop and revise survey instrument. Analysis continues.
April-August 2007	Interview data analysis used to theoretically sample three teachers for classroom obervations. Analysis continues.
August 2007	Pilot test of survey completed. Analysis continues.
September 2007-March 2008	Two observations conducted with each of the three teachers selected. Follow-up interviews completed. Two additional teachers selected for observations. Analysis continues
October 2007	Surveys administered and returned. Analysis continues.
March 2008-May 2008	Second sample of observations conducted. Follow-up interviews completed. Analysis continues.
May 2008-December 2010	Analysis continues. Write-up completed.

After each observation, an interview time was set up to discuss the video of the lesson, constituting the fourth strand. A modified think-aloud procedure based on stimulated recall was employed and a new video was recorded of the process to assist analysis (Fogarty, Wang &

Creek, 1983; Paterson, 2007). Owing to a noted limitation of the stimulated recall technique (Ericsson & Simon, 1980), a modified version was developed which not only alleviated this concern but was also designed to be more consistent with grounded theory methodology.

Analysis of the data involved an ongoing cyclical process that coincided with much of the data collection period. Additional information and verification were informally sought when and as needed by the interview participants during the final analysis period. Software aided significantly in all stages of the data collection and analysis including transcription, coding, theorizing and write-up. Below, Sections 5.5 through 5.8 unpack the background and logistical details of each of the four strands of the study.

5.5 Initial Interviews: Background, Logistics, and Participants

A set of key issues can help to highlight some of the dynamics that are at play during a typical interview. These include:

1. *Power* – the relationships and structures at work between the interviewer and interviewee;
2. *Social Position* – the context of social relationships that exists (legal, economic, religious, community, organizational, cultural, gender, ethnic, etc.);
3. *Value* – the value of the information as a commodity (as leverage, blackmail, testimony, etc);
4. *Trust* – the extent of honesty in exchange (revealing vulnerabilities, making impressions, objectivity, etc.);
5. *Meaning* – the words employed may not be intended or latent meanings may be disregarded/misinterpreted;
6. *Interpretation* – the critical ability to choose intended interpretations between multiple meanings;
7. *Uncertainty* – the difficulty in being certain that messages and meanings were understood and successfully conveyed. (Barbour & Schostak, 2005, p. 42)

Anyone who has taken part in an interview (either as an interviewer or as an interviewee) should identify with many of the above concerns; however, as the authors emphasize, these concerns represent a view of "problematize" (Barbour & Schostak, 2005, p. 42) interviewing – a view of interviews which is perhaps pessimistic or in some ways biased toward finding faults rather than merits. Conversely, Strauss and Corbin (1998) take a more constructive view by offering four suggestions about the sorts of questions one might ask in using a grounded theory method: "sensitizing", "theoretical", "practical and structural", and "guiding" questions (pp. 77-78). Sensitizing questions help the researcher 'tune into' the data and the particular issues, problems or concerns going on. For instance, one might try to understand a phenomenon by asking who is performing the action, why, and what meanings and consequences are involved. Theoretical questions help to pose conceptual inquires which begin to abstract from the data to help establish patterns or properties/dimensions. Questions involving larger issues or underpinning relationships would fall under this suggestion. Practical and structural questions help the researcher to fill in the holes in the data by asking who, what, where, when and why queries. The final questions suggested, guiding questions, are ones that change over time owing to their relationship to developing concepts and patterns. These kinds of questions tend to be general at first and then become more specific as the interview progresses.

All interviewers, particularly novices such as the researcher, begin with guidelines about what they want to accomplish and a prescribed set of procedures that they will follow. As the study evolves, however, they tend to get an intuitive feel for what is important which, in grounded theory, is based directly on analysis of the empirical facts observed in previous interviews. In this study, ideas about which areas to address first were initially informed by the research listed in Chapter Three on the impediments to and enablers of technology innovation. At the same time, extensive personal experience with the context (including the participants) helped inform and hone these ideas into significant questions with which to lead interviews initially. However, it might be more accurate to think of these questions as a reserve of potential questions rather than as the basis for directing the interviews. These interviews were semi-structured in that the reserve of questions was used to address the four areas suggested above by Strauss and Corbin (1998) – and only in service of following the lead of the interviewee. It should also be noted that, owing to participants inferring (and expressing) that the study was exploring the deficiencies of

non-users of technology (a logical assumption given the nature of the study), every effort was made to reassure interviewees of the neutrality and grounded nature of the study despite the researcher's general pro-technology bias.

In terms of logistics and participants, the number of teachers employed by the general English program at Park University varies from semester to semester, including the ratio of full-time to part-time faculty. At the start of the study in 2007, 18 full-time instructors were on faculty (including the researcher), with one on sabbatical. Of the remaining 16, 13 agreed and took part in the interviews (n=13, or 81.25%). Five of these 13 also took part in Strands Three and Four: observations and post-observation interviews (see Table 6.4 below for general demographics). The 13 full-time instructors who took part in initial interviews consisted of 62% males and 38% females with an average age of 40 years. Teachers' nationalities include: American (6, including one Korean-American), Canadian (3), Korean (2), British (1) and Australian (1). Most (69%) spoke only one language (English) fluently and the majority (10 of 13 or 77%) had over ten years of teaching experience in Korea. Moreover, forty-six per cent of teachers (6 of 13) had taught at Park University for five years or more. Teachers were required to teach four classes (or 12 credit hours) and hold four office hours a week during each of the two fifteen-week semesters a year. Additionally, teachers were required to perform extra teaching duties during either the summer or the winter breaks every year.

Interviews were conducted in the teachers' offices and usually lasted about 60 minutes (range: 45-94 minutes). As mentioned above, interviews were semi-structured and allowed participants great autonomy in deciding the direction and extent of topics discussed but were based on a predetermined set of questions (Appendix D). Interviews were recorded using an MP3 recorder and subsequently transcribed with the aid of voice-recognition software (see Section 5.10 below). After each interview, general analysis began using the MP3 recording and continued until the start of the succeeding interview. Scheduling between interviews was demanding and variable but did not hinder the analysis in any serious way. Concepts which emerged during each interview were subsequently used to modify the set of questions employed in the following interview to explore emerging properties further.

5.6 Survey Questionnaire: Background and Logistics

McMillan (2004) states that "Surveys are popular in research for their versatility and relative ease in capturing respondents' attitudes and beliefs on a wide range of problems or questions" (p. 195). They allow the researcher to ask an array of questions to a wide audience, especially when self-survey questionnaires are utilized. In the current study, major differences between the mostly native English-speaking full-time teaching faculty, who usually teach four classes meeting twice a week for 75 minutes (including freshman and upper-level courses) – and the part-time, all-Korean faculty, who teach one or two freshman classes alone, is significant. Furthermore, full-time teachers' working conditions are distinct in many other ways such as having different contractual agreements, semi-private offices, and more responsibilities in advising curriculum and testing procedures. Full-time teachers are also ethnically mixed – including American, Australian, Canadian, British, and Korean – while the part-time teachers are all native Koreans. Finally, the part-time faculty usually outnumbers the full-time faculty nearly two to one each semester (at the time of the survey questionnaire administration, there were 33 part-timers and 16 full-timers). It was therefore decided that, after the initial interviews with the full-time faculty, a survey questionnaire would be the best means of accomplishing two main goals: exploring the prevalence of opinions on issues raised during the interviews and using insights between different statuses to illuminate and clarify emerging conceptual properties.

Recently, mixed research designs have become fairly common, with many researchers choosing among "parallel", "sequential", "conversion", "multilevel", and "fully integrated" designs to suit their research goals (Tashakkori & Teddlie, 2009). A sequential mixed design was chosen for the current study for its suitability to grounded theory methods. This is backed by Lazerfeld and Wagner (1958), who said that "interviews should precede the formulation and final development of survey instruments" (p. 28). This design allows concepts to emerge naturally from the data, whereas the alternative designs – to varying degrees – would all 'force the data' prematurely into deductively-generated categories (Glaser, 1992, 1999; Glaser & Strauss, 1967; Strauss & Corbin, 1998). In normal survey questionnaire construction, researchers necessarily choose and refine concepts deductively. However, this is incongruent with inductively exploring a topic by allowing concepts to be unearthed as per a grounded theory method. An alternative would have

been to administer a number of mini-survey questionnaires as concepts emerged from ongoing interviews; however, this was deemed logistically impossible (and would have been insensitive to the faculty). Therefore, the best solution was to conduct interviews first to discover concepts which were then employed in a subsequent survey questionnaire as illustrated in Figure 5.3 and detailed below:

> *Sequential mixed designs* are designs in which at least two strands occur chronologically….The conclusions based on the results of the first strand lead to the formulation of design components for the next strand. The final inferences are based on the results of both strands of the study. The second strand of the study is conducted either to confirm or disconfirm inferences from the first strand or to provide further explanation for its findings (Tashakkori & Teddlie, 2003a, p. 715). (Tashakkori & Teddlie, 2009, p. 153, *emphasis in original*)

Furthermore, Glaser and Strauss first pointed out in 1967 that "[q]uantitative data is so closely associated with the current emphasis on verification that its possibilities for generating theory have been left vastly underdeveloped" (p. 185). Years later, this statement largely still rings true, although in grounded theory, quantitative data and surveys in particular have always been viewed as instruments for data collection and not the basis for theory generation (Strauss & Corbin, 1998). Grounded theorists make use of any and every method that they feel will aid the development of densely integrated concepts and relationships to form their theories. Data from surveys can therefore be equally valuable to theory development and treated and analyzed in the same fashion as interviews, observations, or any other qualitative data (Glaser & Strauss, 1967).

Logistically, the "Technology in Teaching Survey Questionnaire" (TIT) was developed by the researcher using concepts which emerged during the semi-structured interviews (see Appendix F). Ten additional items were added in the second section of the survey questionnaire to position each respondent in relation to Rogers' (2003) adopter categories based on their self-professed innovativeness (it should be noted that no other intervention of Rogers' theory took place during the data collection and analysis process). The design of the survey questionnaire involved an amalgamation of sections and features from well-established surveys (see Appendix G), as well as some less established surveys such as Sahin and Thompson's (2006) adaptation of an

instrument originally developed by Isleem (2003). This was done in order to integrate emerging concepts from the interviews in the best form of survey questionnaire item possible –in terms of both content and form. The first section of the survey questionnaire was reserved for basic demographics about the respondents, while the remaining items were divided into six sections: (1) Background and teaching beliefs; (2) Teaching in the General English Department of Park University; (3) Beliefs about computers and technology; (4) Professional development and the future; (5) Current level of technology use; and (6) Hindrances to computer use (see Appendix A). The final version of the instrument was pilot tested by three acquaintances of the researcher who had the same attributes and qualifications as the target population, but were in no way associated with Park University. Subsequent modifications from the pilot test were made along with recommendations from the researcher's supervisors.

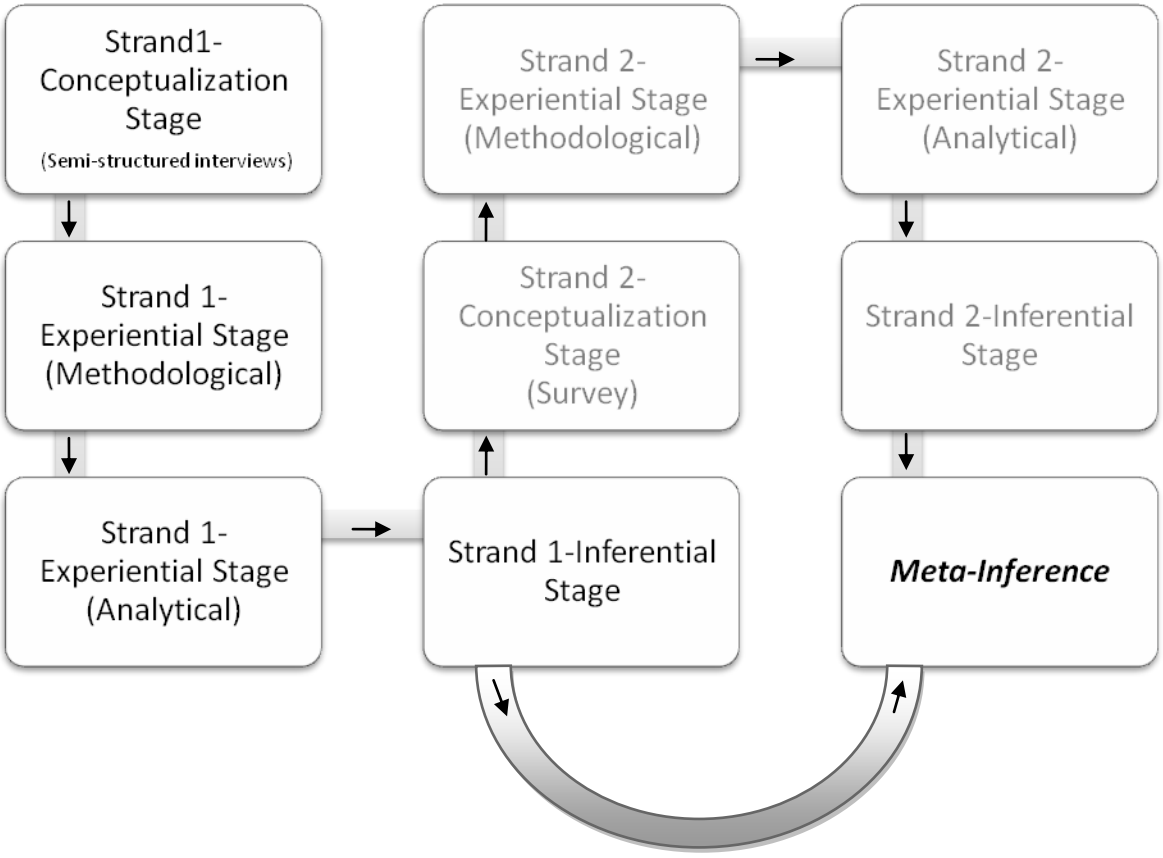


Figure 5.3. Graphic illustration of the "sequential mixed design" used in the first two strands of the current study (adapted from Tashakkori & Teddlie, 2009, p. 154).

An email was then sent out to all teachers with an introduction to the survey questionnaire and directions on its completion (see Appendix H). Participants were notified that the survey questionnaire would be distributed in their department mailboxes in plain envelopes along with a small monetary incentive which was deemed necessary given the considerable length of the instrument. Respondents were advised to return the survey questionnaires anonymously to the researcher's department mailbox at their convenience. The distribution of the survey questionnaires was purposely timed during a natural lull in the teaching schedule during midterm testing to improve the return rate. After two weeks, not all survey questionnaires had been returned; therefore, a second email was sent out with a final deadline for submission two weeks later (all survey questionnaires were returned within one month of the administration). In all, 14 of 16 full-time teachers (87.5%) and 20 of 33 part-time teachers (60.6%) returned the survey questionnaire resulting in an overall response rate of 69.4% (34 of 49).

5.7 Classroom Observations: Background and Logistics

It is necessary to take a perspective when conducting classroom observations. A perspective is congruent with a researcher's ontological and epistemological underpinnings in that it is the basis for choosing a methodology and set of techniques to study and apprehend what is going on in the classroom. Therefore, it is natural for one's observational perspective to be similar to or even the same as one's research perspective. Logistically, however, the techniques used to make classroom observations need to be based equally on the aims in conducting them. As part of the third strand in the current study's process, two aims for observations were identified: 1) verification of the statements made during the first two strands of the study; and most importantly 2) attempt to identify phenomena and patterns that will help fill in gaps in the dimensions and concepts previously discovered. This second aim can be particularly troublesome when the researcher is also a teacher with many hours spent in the same classrooms as the participants – the phenomena and patterns in the workplace may have become implicit, and therefore imperceptible to the researcher. This is a common concern that is recognized and taken into consideration in ethnography. Frank (1999) states that "[a]n ethnographic perspective provides a lens to understand these particular patterns of classroom life which often become

invisible because they become so regular, patterned, and ordinary" (p. 3). Another similar perspective and one more directly aligned with grounded theory is that of phenomenology. Phenomenology was formulated by Edmund Husserl and advanced by the German Gestalt School, and is concerned mostly with how people perceive and interact (Smith, 1999). In terms of classroom observations, this involves making notes in the classroom and interviewing teachers to "see what constructs and interpretations emerge when they talk about the classroom" (Wragg, 1999. p. 57). One caution when employing this method – and indeed also given by Strauss and Corbin (1998) – is for the researcher to keep in mind that what respondents report may not always be accurate (and even at times it may be verifiably untrue). The respondents' beliefs are as important as the facts, particularly when perspectives are solicited; however, the researcher needs to see all the versions of 'reality' and consider the implications of the differences with the demonstrable facts. Wragg (1999) describes this amalgamated view as "a single snapshot taken through a lens covered by several coloured filters" (p. 58), where the colored filters represent the different perspectives of the interviewees and the snapshot signifies (in some sense) mutually-agreed-upon facts.

Consequently, the foundation of the observations was to understand the perspectives of the teachers while trying simultaneously to become aware of actions and motivations as if having no knowledge of the context. To assist in this process, a record of significant events and empirical facts was created (in chronological order) along with a video (MPG) of the lesson (Appendix E). This helped to ensure that the written record of events was accurate and could be verified by cross-checking with the video. The video record further freed up the researcher to explore thoughts and questions related to the developing concepts and jot them in the margins of the notes as they occurred.

Logistically, the administration of Park University uses classroom observations to assess each teacher's behavior, methods and organization as part of a regular job-performance evaluation. In fact, teachers including the participants in the study take part in this annually or biannually, one semester before the expiration of each contract. For beginning teachers, a videotape of one of their 75-minute lessons is later evaluated by the rehiring committee; while teachers with more than three years of experience at Park University have the committee attend one of their lessons

for evaluation. As a fellow teacher in the department, the researcher was well aware of the pressure and imposition placed upon teachers during these observations. With this in mind, the researcher made considerable effort to assure participants that they were not in any way being judged, but that their motivations and pattern of actions – including any use of resources such as technology – were the focus of the observations. This reassurance began with the initial emails and/or chats with participants to arrange the dates for the observations. Once the dates were settled, any chance meetings were used again to reassure the participants, and shortly before each observation an email or verbal reminder also included words of encouragement.

Five participants among the 13 who took part in the initial interviews also agreed to take part in this strand of the research, with two lessons from each selected for observations. Approximately ten minutes before the start of each lesson, the researcher entered the back of the classroom, arranged a desk in an area not occupied by students, set up the video camera and began to record. During the observation, the researcher remained seated at the desk taking notes and did not touch or in any way draw attention to the video recorder. This was a conscious effort not to mimic the actions of the evaluation video tapers who very obtrusively stand behind a video tripod during the entire lesson and pan to follow any movements of the teacher. Once the lesson had finished, the researcher remained seated to allow students to interact with the teacher as normal and approached the teacher only if and after students had departed. In hindsight, this proved to be a wise decision as the additional minutes of interaction with students in the classroom environment were sometimes revealing in terms of teacher/student interactions.

5.8 Post-Observation Interviews: Background and Logistics

Two popular techniques for eliciting teachers' thoughts on their teaching decisions are 'think aloud' procedures, and 'stimulated recall'. Think aloud protocols are essential to studies in disciplines such as education because they can "provide data about both sophisticated and less sophisticated cognitive processes that are difficult to obtain by other means" (Someren, Barnard & Sandberg, 1994, pp. 6-7). Basic think aloud procedure is simply to have the participant express her or his thoughts aloud while performing an action or actions (Someren, Barnard &

Sandberg, 1994). However, while the think aloud interview technique can take place as the action is occurring, it can also be conducted shortly after the event has concluded. This latter form is similar to stimulated recall, which involves using a form of stimulation – often a video of the participant's action(s) – to prompt participants to make explicit what they were thinking during an action they had performed. Lyle (2003) says that this "method has considerable potential for studies into cognitive strategies and other learning processes, and also for teacher/educator behaviour" (pp. 861-862). However, there are drawbacks to think aloud and stimulated recall techniques. For instance, some research suggests that having participants think aloud while performing a task does not hinder its performance, however, Hoffman et al. (1995) put forward that it is inefficient at generating data about the event. Moreover, as Ericsson and Simon (1998) have found, the process of eliciting responses can interfere with the participant's ability to "maintain undisrupted focus on the completion of the presented tasks" (p. 181).

Further, one of the acknowledged limitations of stimulated recall is that, although the process does motivate teachers to bring to mind what they were thinking at the time of teaching, it also elicits thoughts that occur during the viewing of the video (Fogarty, Wang & Creek, 1983). Both of the above limitations are not seen as constraints for a grounded theory study, however, because the focus of the observations and interviews is not the fidelity of detailing the thought process involved during teaching, but generally the thoughts themselves – however and whenever they occur. In short, a mixing of think aloud and stimulated recall protocols allowed the researcher and interview participants the freedom to probe the data as needed to explore the unique concepts and dimensions of the study as per grounded theory method:

> Occasionally the videotape of the interview/lesson is supplemented by 'think aloud' procedures (Allison, 1987; Tjeerdsma, 1997). These are used for analysis or to assist the subject's recall. The normal procedure is for a recall/probe technique to be used to generate/facilitate the subject's thinking during the episode being replayed. The instruments and methods used to stimulate and record these thought processes also vary. The general pattern employed is a series of structured, but relatively open-ended, questions posed to the subject as soon as possible after, or during, the viewing of the videotape. Questions are centred on a description-thinking-noticing-alternative behaviours structure (e.g. Housner & Griffey, 1985; Walkwitz & Lee, 1992) or are

> designed more specifically to reflect the focus of the study (Martin et al., 1986; Fernandez-Balboa, 1991; Lee et al., 1992; Byra & Sherman, 1993; Tjeerdsma, 1997). (Lyle, 2003, p. 863)

Logistically, teaching observations were recorded using a digital camera with the capability of capturing an entire 75-minute lesson of sufficient quality to "see my eyes move" as one of the respondents, Stephen, mentioned (SSI #8). This was a catalyst in aiding teachers to recall the lesson during the interview which, owing to scheduling restrictions, often took place the day after the lesson. Some post-observation interviews took place later the same day, while two, unfortunately, took nearly a week to complete. While this was a limitation at times, it was not deemed to be critical given the mixed-techniques mentioned above. Teachers were allowed to pause or rewind/fast forward the video at any time during the interview and if desired end the interview at any time. The length of the interviews was quite long, averaging 85 minutes – the shortest being 73 minutes, while the longest went on for 174 minutes. Each participant took part in a post-observation interview after each of the two observations made. All interviews were captured again on video to assist accurate analysis and free up the researcher to review notes and the lesson playback with the respondent.

For each interview, the video of the lesson was viewed on a computer (full screen), while the participant and researcher looked on side-by-side. The notes from the lesson were used to prompt questions at various stages of the lesson; however, most of the interview was spent with the teacher commenting on her or his thoughts at the time or adding thoughts which occurred to her or him while viewing the lesson. Owing to the considerable time required for the interviews, an offer to buy lunch or dinner for the teacher after completing the two interviews was usually gratefully accepted by the participants.

5.9 Data Management Process Overview

The initial semi-structured interviews in the first strand of the study were each digitally recorded in MP3 format and labeled in the order in which they were conducted together with the participant's first name (such as "1Jerry.mp3"). These recordings were then transcribed into Rich

Text Format (RTF) files and labeled as transcripts with the participant's name (such as "Jerrytranscript.rtf"). These transcripts were then loaded (as they occurred) into the Atlas.ti, 5.2.1 analysis software program and analyzed. Atlas was chosen over other programs such as NUDIST and NVivo owing to the fact that Strauss (cited in Strauss & Corbin, 1998) consulted on the development of the program to better match grounded theory's methodology. In the second strand of the study, construction of the survey questionnaire began with a few basic tables in Microsoft Word, and after months of additions and revisions, became a seven page, 160-item survey questionnaire in a Word processing document file. As mentioned above, survey questionnaires were administered and returned through the department mailboxes. Data from the survey questionnaires were first hand-tabulated and eventually entered into a quantitative software program (SPSS, 16.0, Trial version) under the pseudonyms of the participants. In the third strand, observations were recorded on a digital camera in MPG format and backed up on multiple hard drives (with private access restrictions in place).

The MPG files were again labeled with the participant's first name and numbered in order of the observation (such as "Amy1.mpg"). Handwritten notes taken during the observations were recorded in a bound journal and later digitally scanned (and labeled to match the observation MPG files plus the word "notes", as in "amy1notes.jpg"). In the final strand of the study, classroom observations from strand three were transported via a portable hard drive (files were all over one gigabyte each) and loaded onto an office computer for viewing by the participant and the researcher. A digital camera was set up again to record the interview in its entirety. This produced another MPG video that was labeled as a think aloud interview with the participant's name and the interview number, such as "thinkaloudcraig1a"and "thinkaloudcraig1b", etc. (the "a", "b" and "c" designations were a necessity owing to the length of some of the interviews). The MPG files were then loaded into Atlas.ti 5.0 for analysis. All files pertaining to the study such as consent letters, emails, permission forms, notices, and this dissertation including graphics were backed up on hard drives for security reasons.

The researcher's experiences with using technology for the current study in many ways mimicked teachers' experiences in the classroom. Some things worked well, others not so well;

however, throughout, the concepts and dimensions that the researcher was trying to analyze were often experienced by the researcher as well during the study.

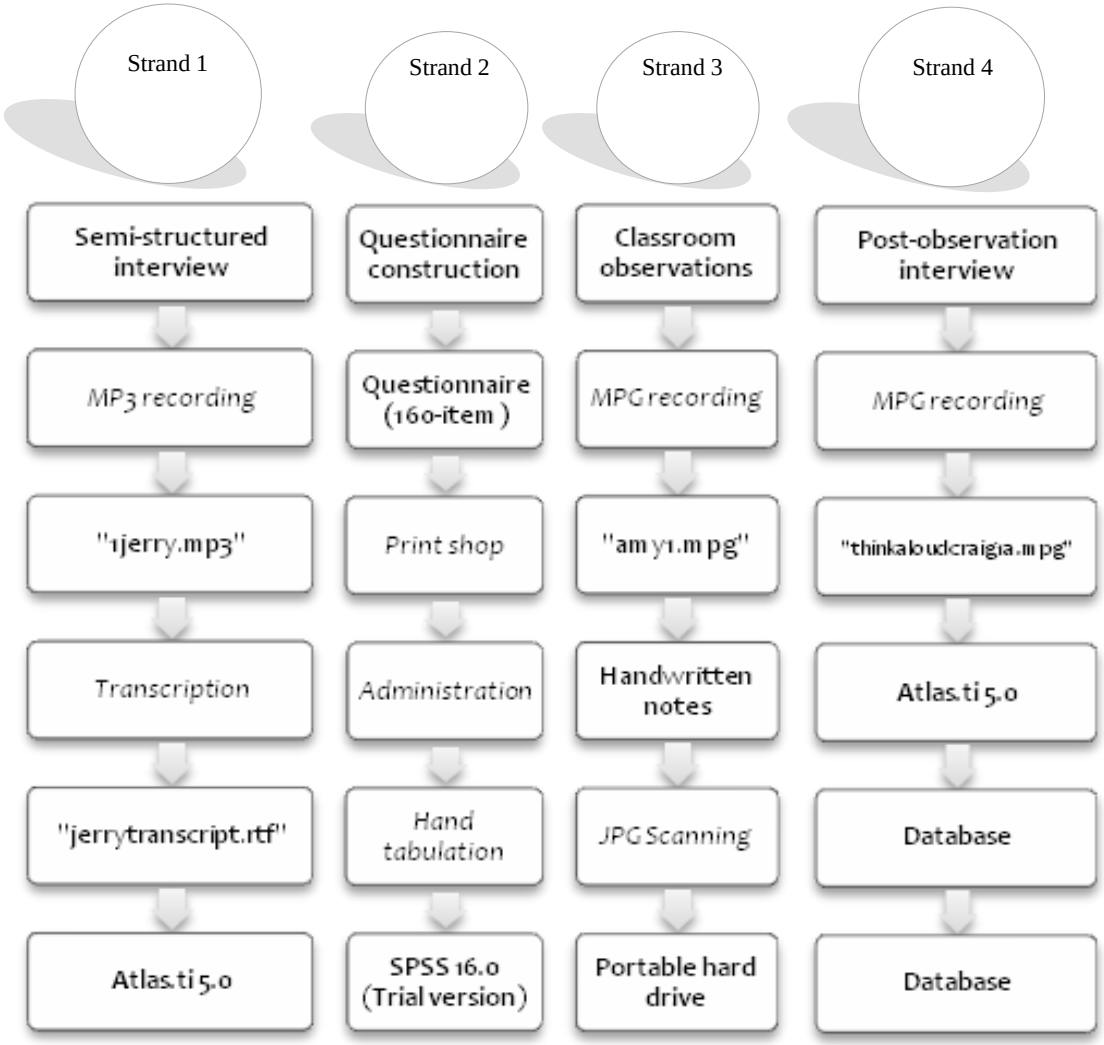


Figure 5.4. Data management flowchart.

The valuable insights provided by these personal experiences with using technology to conduct the research helped to serve informally as another source of data to compare and contrast with the developing categories. Consequently, the use of technology in this study was invaluable in many unforeseen ways beyond the organization and analysis of data.

5.11 Summary

Chapter Five gave an overview of the methods, techniques and logistics of the study. Section 5.2 provided a brief review of the impetus and motivation behind the choice of diffusion of innovations and grounded theories for this study. The notion of a case study was opined to be more of a setting of boundaries or reporting style than a distinct method as viewed by many authors. Section 5.3 sketched out the basic techniques that were chosen and the reasons behind them. Interviews were said to collect information about the feelings or thoughts of the participants; survey questionnaires cover a wide array of topics and allow larger numbers to reply; and observations focus on the actions of the participants, while post-observation interviews allow their thoughts in action and reflections to be highlighted. Next the research questions were matched up in a table with the specific techniques used to address them. The following section (5.3.1) reinforced the ethical considerations of the research design and techniques by discussing five important principles of ethical research. These stated that researchers should 'respect' their participants and allow them a measure of 'autonomy' while monitoring the relationship between 'benefits' and 'costs' of the research for them. 'Justice' and 'trust' are likewise pillars of ethical standards; however, it was emphasized that the single most important element may be the 'fidelity' or 'integrity' of the researcher. These codes of conduct were then matched up with the techniques which directly attend to each in this study.

Section 5.4 dealt with the logistical overview of the study. The techniques utilized were listed as they were performed and a research timeline aided illustration of the dates which corresponding to each strand of the study. The next section and subsection (5.5 and 5.5.1) gave a directed view of the issues at play during interviews, discussed suggestions for questioning based on grounded theory and then detailed the steps in conducting them. Seven issues in interviewing were then mulled over including "power", "social position", "value", "trust", "meaning", "interpretation", and "uncertainty". This set of issues, however important and applicable, was seen as a somewhat pessimistic view of interviews and therefore an alternative, more productive approach was taken. This method, based on grounded theory, was guided by a variety of types of questions for the interviewer to ask to promote theory development, including: "sensitizing", "theoretical",

"practical and structural", and "guiding" questions. 'Sensitizing' questions were shown to help the researcher focus on the phenomenon or actions occurring, while 'theoretical' questions help conceptualize the patterns involved. 'Practical and structural' questions unearth details needed to fill in gaps in the developing theory and 'guiding' questions signify the signposts that change between and within each interview as researchers follow the trail of clues in an attempt to resolve the larger issues of the study. The section ended by pointing out the necessity of reassuring participants that the study's methods (and the researcher) did not regard their actions in the classroom in any way other than as an explanation of what was going on theoretically in their patterns of behavior.

The next section and subsection (5.6 and 5.6.1) covered the theoretical and practical issues of survey questionnaire construction and administration. It was shown that survey questionnaires help researchers explore a wide array of beliefs from a large number of participants. Survey questionnaires were seen as the best way to obtain the unique opinions of teachers, particularly part-time teachers with distinctly different working conditions from those of full-time employees. The issue of mixed research design then was considered by way of explanation for the use of a survey questionnaire in a predominantly qualitative study. Different types of mixed designs were introduced to highlight the benefits of a sequential mixed design for the current study. Specifically, this design was seen as the only one consistent with the basic tenets of grounded theory in allowing concepts to emerge naturally from the data. The design of the survey questionnaire in this study was then described as an amalgamation of well-established models, including an overview of the section topics. The process of the construction and administration of the survey questionnaire was then briefly described. Finally, the response rate to the survey questionnaire was shown to be excellent, with nearly all the full-time faculty responding and with an overall return rate between full- and part-time faculty of nearly 70%.

In Section 5.7 and Subsection 5.7.1 on class observations, a naturalistic perspective was presented which incorporated elements of ethnography and phenomenology. This was shown to be consistent with the aims of grounded theory which were to verify and hone the emerging concepts of the study. Video capture of the observations was viewed as both a positive and a negative decision in that it aided later analysis, but unfortunately was in danger of being associated with the stressful rehire process in which video of lessons is also employed. The

researcher therefore reassured the participants by remaining discreetly seated in the back of the classroom throughout the lesson with the video camera left unattended. Note-taking was also seen as a necessity during the process for accuracy sake.

Section 5.8 highlighted the think-aloud and stimulated recall techniques and their limitations before considering their associated processes. The think-aloud technique was seen as an aid to explicate the thoughts of teachers while teaching, but requires a singular focus on the task by the participant. Stimulated recall is aided by video of the lesson; however, it is also hindered by thoughts considered by the teacher while reviewing the lesson. Therefore, a blending of the two was shown to be more beneficial and consistent with the grounded theory method. The last section, 5.9, overviewed the process of data management in the study. A graphic diagram was presented which illustrated the processes involved in the four strands of the study. The contribution of technology was shown to involve positive effects in terms of efficiency, but also in providing insights into the analysis of the study and its participants.

Chapter Six: Analysis and Findings

6.1 Introduction

This chapter looks at the analysis and findings from each of the four strands of the research. These are presented in chronological order from the initial semi-structured interviews (strand 1) and analysis procedures of the survey questionnaire (strand 2) to the classroom observations (strand 3) and post-observation interviews (strand 4). Each strand begins with an overview of the method of analysis employed for that strand followed by the logistics of the analysis utilizing specific findings.

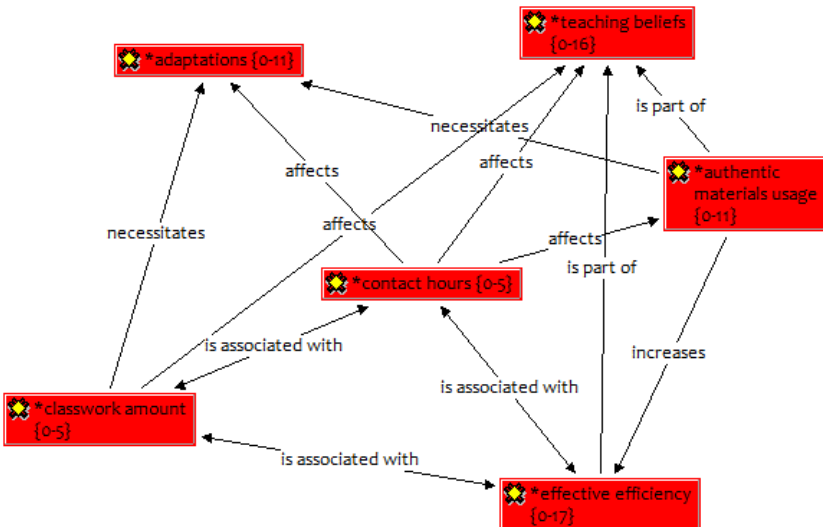
The final section of this chapter highlights the advance of the central category which led to the development of the substantive theory presented in Chapters Seven and Eight. In conclusion, three central domains of the theory which represent the teachers' internal concerns, external concerns and negotiation of the two are presented. These domains include: "teacher psychodynamics", "administration, infrastructure, student variables, and teacher community", and *what works*.

6.2 Strand One: Semi-Structured Interviews

As discussed earlier, the initial interviews began with a set of questions derived from the researcher's knowledge and experience of the setting and participants (see Appendix D) and evolved with each successive interview (chiefly the "guiding" questions – see Section 5.5 above). Each interview recording was transcribed and loaded into the Atlas.ti 5.2.1 program for analysis.

The coding process began with some of the first codes to be labeled including "influence of available resources", "desire to learn technology", and "chalk is old-fashioned" (the first two are

open codes and the third is an in-vivo code as it came from the participant, Jerry's, own words [SSI#1]). The first two were more closely related together than with the third, although they were all relatively close in the 'big picture' (which included the much larger context of which technology use was but a small part). When these were first coded, it was not known that later the former two would be recoded into a broader code named "seeking training and knowledge" or that "chalk is old-fashioned" would be subsumed under the broader code of "teacher image" (which would become the code family "image"). These kinds of iterations and revisits of codes and quotations went on throughout the study. To make an analogy, this is similar to how many advocates of jigsaw puzzles work: trying to identify the relationships between pieces or codes which are near one another visually (axial coding). To do this, the researcher first created small diagrams of how these local pieces related to each other – using "network views" in Atlas 5.2.1. For instance, in Figure 6.1, the first associations with the code "*contact hours" can be seen which helped to make connections between aspects and dimensions (the asterisk in the name indicates a test diagram used to explore relationships). At the same time, work was done to elaborate the dimensions and properties based on these first simple relationships.



Note. Red boxes indicate open codes; lines indicate relationships.

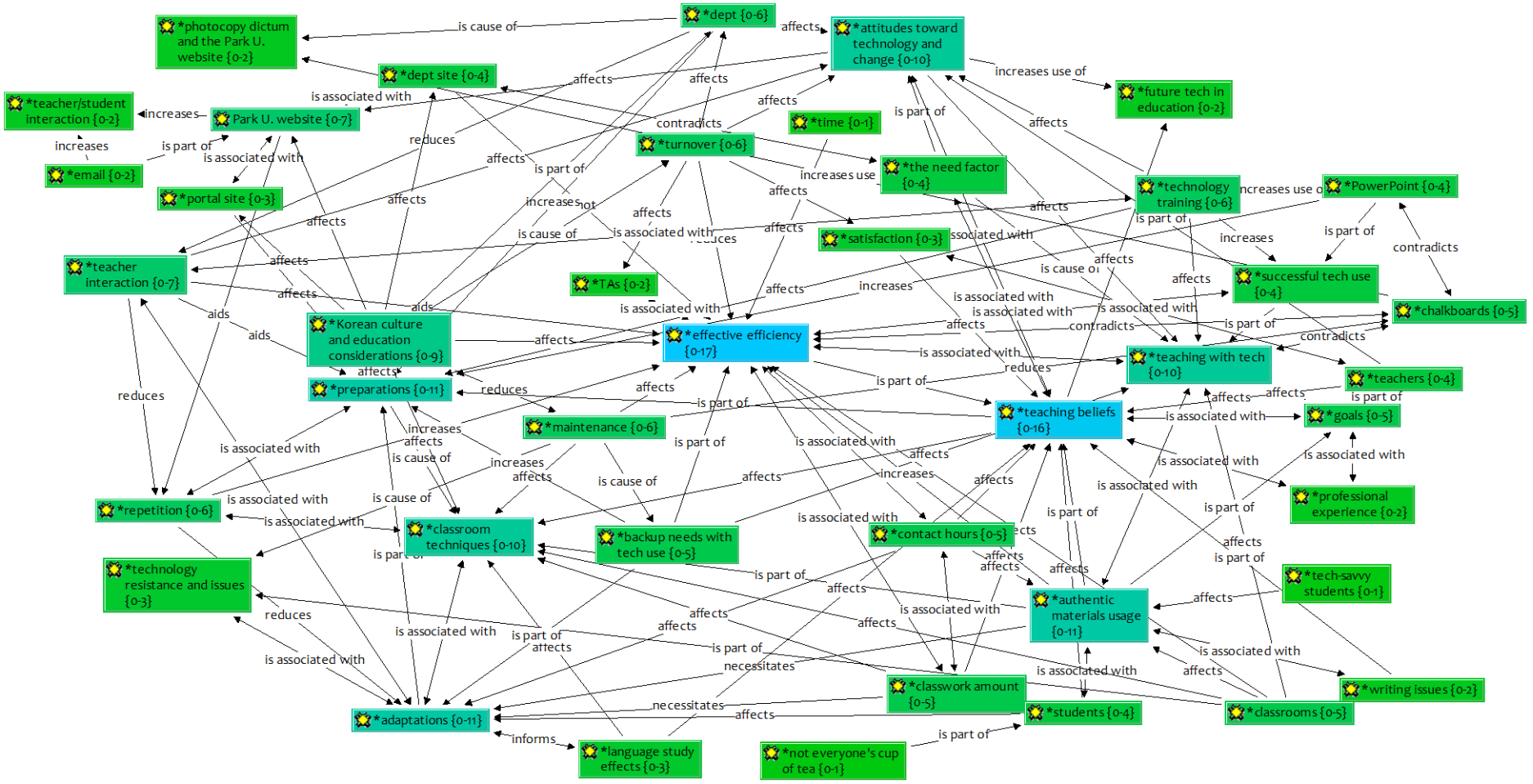
Figure 6.1. Network view of *contact hours.

The process was more involved; however, this illustrates how these local networks were built up one by one and revised until eventually they all fitted together into the first overview of "the whole shebang" (Adele Clarke, as cited in Strauss & Corbin, 1990, p. 14) (see Figure 6.2).

When this overview was first realized, it was very motivating; however, what this represented was not a theory, but a series of inter-related categories – this proved to be a problem for some time. In hindsight, it became apparent what Strauss and Corbin meant when they said that in selective coding even experienced researchers can have difficulty in "making a commitment to a core category" (Strauss & Corbin, 1990, p. 14). Fortuitously, in Atlas 5.2.1, network views have another useful feature – the category boxes change color depending on how many links they have with other categories in the view (this represents their relative density). While looking at the overview, it was clear that what had naturally occurred was that the codes of "effective efficiency" and "teaching beliefs" had acquired the most links (they are both light blue in Figure 6.2). In memos, this problem was pondered: "I've gone over these categories so many times; however, I still can't see a real 'storyline' – what do all of the relationships and actions collectively say about the issue?.....Is the main category to be found in the interplay between effectiveness and teaching beliefs?" (Author, 9/20/2008). The answer, realized after more analysis, was yes – however, not entirely.

Two to three months passed to reanalyze various parts of the data, trying anything to gain a fresh perspective and rework the results (it is at this juncture that some statistical procedures of significance were employed in the analysis of the survey questionnaire for the first time – see Section 6.4 below). Codes and code families were broken down and reformed around various theoretical hypotheses to check their fit to the data. Numerous revisions ensued until the final substantive theory of "what works" that is explicated in Chapter Seven was completed.

Logistically, by the end of the initial interviews (n=13) a list of approximately 132 codes (somewhat indefinite at that stage owing to the continuing analysis involved) was identified and helped form the skeleton of the developing theoretical structure (Strauss & Corbin, 1998).



Note. All boxes indicate open codes; codes in quotations indicate in-vivo codes; lines indicate relationships.

Figure 6.2. An overview of the main conceptual categories and their basic relationship.

The list of codes (Appendix I) was arranged in order of the codes' "groundedness", which refers to the number of quotations which reference the involved concept (Strauss & Corbin, 1998). For instance, in Table 6.1, the top ten of the initial 132 codes and their groundedness are listed along with a sample for each. An important distinction should be made here between the groundedness of the codes in Table 6.1 (and Appendix H) and the groundedness of the categories in Figure 6.2 as they refer to significantly different relationships. The groundedness of the codes in Table 6.1 (and Appendix H) refers to the number of quotations for each code, whereas the groundedness of the categories in Figure 6.2 shows the number of categories that have associations with them. When considering the difference between the groundedness of the code "teaching beliefs" in Table 6.1 and the category teaching beliefs in Figure 6.2, the latter has taken on a much more prominent role among other categories (the second largest) than it had as an independent code (with only 72 associated quotations). The reason for this apparent disparity is that the category "teaching beliefs" had been merged with other lesser codes (during axial coding) and therefore had a greater scope than and slightly different focus from the original teaching beliefs code. The list of 132 codes was eventually reworked into a smaller set of 45 categories or code families (see Table 6.2).

At this point, the properties of each of the honed 45 categories were further explored and their dimensions compared using more network diagrams and copious memos. In Figure 6.3, the network view of the first category ("adaptations") is shown with the red boxes representing its main properties and clusters of aspects and dimensions surrounding each (this figure is meant as an illustration of the amount and position of groupings that took place rather than as an explication of each of the elements). Significantly, the properties found in this category seemed to span the majority of the other top categories (listed in Table 6.2).

Table 6.1
Top Ten Initial Codes, "Groundedness", and Sample Quotations

Code name	"Groundedness"	Sample quotation
tech resistance and issues	224	"I could go through it, but I still didn't have – I think I just didn't seem to have a concept of how a computer – I didn't have the big picture. It's hard to explain; I could go through the motions but I didn't have a thorough understanding of what was actually happening" (SS interview 4: Russ)
class organization techniques	216	"So, in some cases, I do things, you know, I used to want to be more creative with randomizing groups and now I'm much more, 'You, you, you, you; this is the group'" (SS Interview 5: Rich)
attitude toward tech and change	134	"That's my biggest problem with it. Even with this new Park University site system, you can't trust that students will be able to logon to it when they want to because the system gets overrun or breaks down for some reason" (SS Interview 7: Sarah)
tech use in teaching	107	"I try to use one video in the first half and one video in the second half just to kind of mix things up – do something different from time to time" (SS Interview 12: Ian)
personality	97	"Yeah, I'm a bit of a pessimist, but…a bit of a skeptic, a bit of a cynic, but…." (SS Interview 5: Rich)
tech training and experience	97	"But at work, like how to use the equipment or like I've learned how to use video in the classroom from a teaching standpoint, but not as a physical, like which button to press or that kind of thing" (SS Interview 13: Sophie)
Korean education issues	91	"…it seems that there's favoritism towards men, especially after first-year at universities – they come out of the army and they get special treatment" (SS Interview 11: Martin)
adapting classes and materials	88	"And I know that for me one thing with books: if you have a good book, you don't need the worksheets" (SS Interview 6: Tina)
Park University website use	87	"I guess I could do the same thing with the OHP, but I liked the idea of having something there permanently for them so whenever they want they can go in and look at it" (SS Interview 10: Amy)
teaching beliefs	72	"So I'm not really particular about correcting their mistakes all the time because I don't think it's that important" (SS Interview 3: Val)

See for example, "use of resources" and the adjoining clusters found in the bottom right of Figure 6.5. In Figure 6.4, various properties and their dimensions are beginning to take shape. For instance, an instructor who has more teaching experience has more repetition of lessons and less preparation and tends to have higher self-efficacy in her or his teaching. However, an important point to keep in mind when forming relationships between properties and dimensions is the difference between correlation and causality and the direction of the relationship: a teacher with lower self-efficacy tends to teach to the test more which increases the use of supplements which adds to preparation; however, this is not to say that teaching to the test or using more supplements equates to lower self-efficacy.

Table 6.2
The Main 45 Categories/Code Families (alphabetized)

Adaptations	**Park University Website**	**TAs**
Attitudes Toward Technology and Change	Issues	Teacher Interaction
Authentic Materials Usage	Korean Culture and Education Considerations	Teacher/Student Interaction
Backup Needs with Tech Use	Language Study Effects	Teachers
Chalkboards	Maintenance	Teaching Beliefs
Classroom Techniques	"Not Everyone's Cup of Tea" (Jerry, SSI#1)	Teaching with Technology
Classrooms	Photocopy Dictum and the X Website	Tech Savvy Students
Class Work Amount	X Admin Site	Technology Resistance and Issues
Contact Hours	PowerPoint	Technology Training and Experience
Dept	Preparations	The Need Factor
Dept Site	Professional Experience	Time
Effectiveness Efficiency	Repetition	Training
Email	Satisfaction	Turnover
Future Technology in Education	Students	Vocabulary
Goals	Successful Tech Use	Writing Issues

Assessing this type of phenomenon can be more complicated when there are few or no contextual factors to help navigate multifarious relationships such as in one-shot survey questionnaire research analyzed by purely quantitative means:

> This means that we cannot be certain about the direction of the relationships. For instance, we sense that education is a precursor of enhanced adaptability. However, could it be that the relationship flows in the opposite direction? (O'Connell, McNeely & Hall, 2008, p. 257)

In qualitative case studies like the current research, the direction of relationships can be and is necessarily investigated within a broader context to reveal the direction of most relationships (more about this in Section 6.5 below).

Thus, through developing properties and dimensions for each category, it was possible to locate where the axes existed – where the main relationships were to be found and where the density was the "thickest" (Strauss & Corbin, 1998). This is illustrated in a short theoretical memo written during that stage in the analysis:

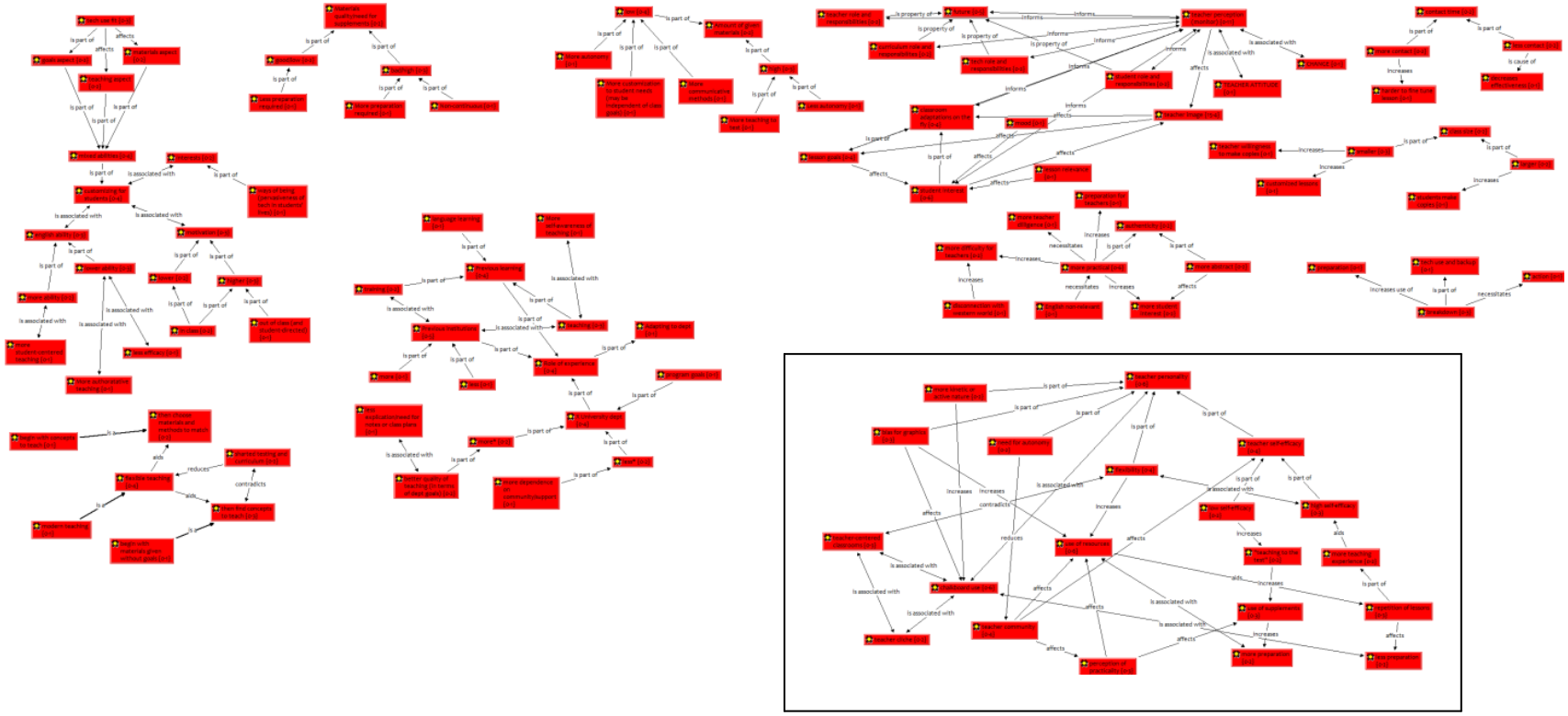
The continuum of consistency seems to be the main category found in the interviews ("adaptations in class"; "effectiveness efficiency";"teaching beliefs";"classroom organization techniques"). Teachers will usually not put effort into doing something that they know are one-offs or for use one time ("preparations"; "benefits of repetition"). Teachers try to make their teaching easier and less time-consuming because there is such a demand on their time that they need to reduce wherever possible ("time"; "effectiveness efficiency"; "the need factor").

Rogers describes technology as something that reduces uncertainty; in other words, technology increases certainty or consistency, reliability, dependability. This is key to attitudes about incorporating technology in teaching ("attitudes toward technology and change"). If a teacher needs to spend extra time as part of the learning curve due to the lack of workplace training, then they will do so only if it reduces uncertainty or makes things more time efficient and/or qualitatively better ("time"; "effectiveness efficiency";"the need factor"). Sometimes there is a conflict between implementing changes that are known to increase quality due to the time and effort involved and the real advantage or outcome in doing so ("preparations"; "a balanced view"). If the teacher has low self-efficacy ("teachers"; "personality") such as occurs in large programs with set curriculums, they may be less willing to attempt changes that are in any way uncertain or not proven to provide significant improvements ("teacher image"; "goals").

Some teachers though are willing to risk the uncertainty and put in extra time and effort in using technology (attitudes toward technology and change; "personality", the need factor). This requires two or three backups of lessons, in essence, preparing two or three times for the same lesson ("backup in tech"; "preparations for class"; "tech works"). Why would some teachers be willing to do this? Is there a relationship between the teachers' preference for authentic or practical goals in teaching and their willingness to risk technology use? Are these teachers more practically-oriented in their lesson plans? Are new teachers more willing to make changes? Do some teachers (ex: younger) use more technology in their personal lives and so their willingness/desire to use technology in teaching is simply an extension of their personal habits? (Author, 7/30/08)

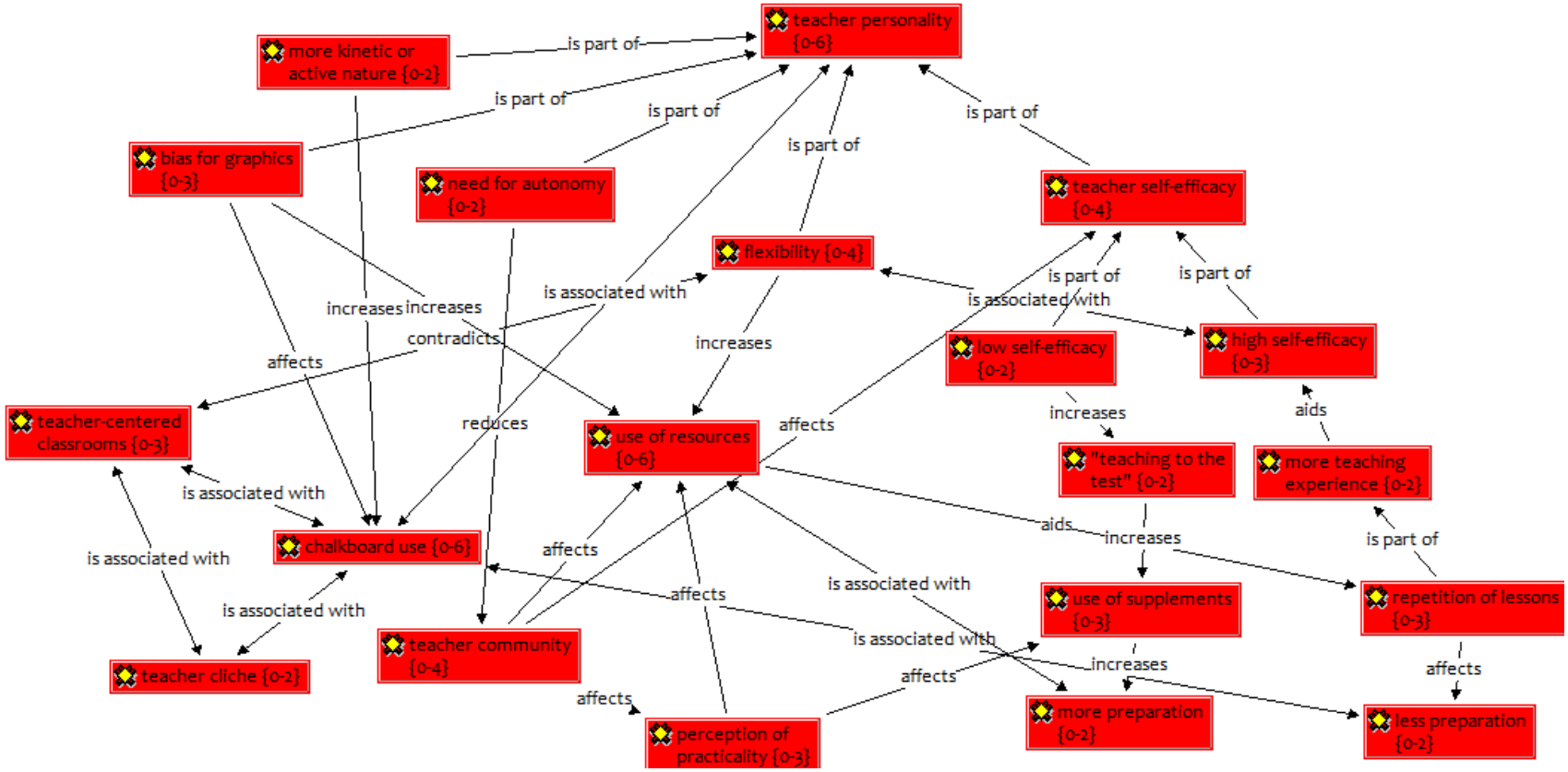
In the above memo, the categories and concepts known at the time are integrated into patterns and therefore reflect the constant comparative method of basing conjecture on the results of multiple comparisons in the coding process. Further, most memos during the course of this study follow this pattern of first addressing emerging relationships and then ending with questions on possibilities and attempts to find potential fertile ground for further exploration. It should also be noted that, despite the efficiency inherent in the memo-writing process in Atlas 5.2.1, many of the notes and memos used in this study were jotted down on the backs and margins of various papers consulted at the time. This was because insights often occurred while not at the computer and/or while working with print-outs and articles. There is an advantage to writing memos in this fashion: whenever an article or print-out is in hand, the notes and memos which are directly pertinent to it are also in hand, thus improving utility and quick access. Although not necessarily prescribed, in the final analysis of grounded theory or any other qualitative study, "[t]he analyst has to develop his or her own style and techniques" (Strauss & Corbin, 1998, p. 223). It seems reasonable to suggest that researchers follow methods and guidelines but in ways that match their own idiosyncrasies and needs.

Furthermore, as mentioned above, once the central category of *what works* was realized, it seemed logical to reorganize the data around this framework. This was done mainly to help organize the study database in hopes of eventually publishing it in its entirety. Table 6.3 indicates a sample of the new framework that resulted from establishing the central category through comparison of the old and new coding schemes used in the top ten categories from Table 6.1. For instance, the first category named "tech resistance and issues" in the new coding system becomes 'PSY/ATT/PER/INF/ISS', which when expanded would read: Teacher **PSY**chodynamics/**A**ttitude **T**oward **T**echnology and use/**PER**sonal experience/**INF**ormal learning/**ISS**ues. A complete consideration of the findings and specific aspects of the emergent theory is explicated in Chapters Seven and Eight in the "what works*"* substantive theory.



Note. Illustration meant as a graphic overview of the groupings in terms of design and not for explication; all red boxes indicate open codes; connecting lines indicate relationships; boxed area indicates area represented in Figure 6.4.

Figure 6.3. A network view of the properties and dimensions of the *adaptations* category.



Note. All red boxes indicate open codes; codes in quotations indicate in-vivo codes; lines indicate relationships.

Figure 6.4. A network view of the aspects of the property *use of resources* and their general relationships.

Table 6.3
Top Ten Category List with Old and New Coding Schemes and Sample Quotations

Original Code Name	**"What Works" Code Name**	**Sample Quotation**
Tech Resistance and Issues	PSY/ATT/PER/INF/ISS	"I could go through it, but I still didn't have, I think I just didn't seem to have a concept of how a computer – I didn't have the big picture. It's hard to explain; I could go through the motions but I didn't have a thorough understanding of what was actually happening" (Russ, SS interview 4)
Class Organization Techniques	PSY/LE/PRO/UNI/ADA	"So, in some cases, I do things, you know, I used to want to be more creative with randomizing groups and now I'm much more, 'You, you, you, you; this is the group'" (Rich, SS Interview 5)
Attitude Toward Tech and Change	PSY/ATT/PRO/IN/ISS	"That's my biggest problem with it. Even with this new Park University site system, you can't trust that students will be able to logon to it when they want to because the system gets overrun or breaks down for some reason" (Sarah, SS Interview 7)
Tech Use in Teaching	PSY/ATT/PRO/IN/USE	"I try to use one video in the first half and one video in the second half just to kind of mix things up; do something different from time to time" (Ian, SS Interview 12)
Personality	PSY/P/BI/PER	"Yeah, I'm a bit of a pessimist, but…a bit of a skeptic, a bit of a cynic, but…." (Rich, SS Interview 5)
Tech Training and Experience	PSY/LE/PRO/TECH/ISS	"But at work, like how to use the equipment or like I've learned how to use video in the classroom from a teaching standpoint, but not as a physical – like which button to press or that kind of thing" (Sophie, SS Interview 13)
Korean Education Issues	AI/KS/SV/EQU	"…it seems that there's favoritism towards men, especially after first-year at universities – they come out of the army and they get special treatment" (Martin, SS Interview 11)
Adapting Classes and Materials	PSY/TB/LM/M/ADA	"And I know that for me one thing with books, if you have a good book, you don't need the worksheets" (Tina, SS Interview 6)
Park University Website Use	PSY/ATT/PRO/EX/USE	"I guess I could do the same thing with the OHP, but I liked the idea of having something there permanently for them, so whenever they want they can go in and look at it" (Amy, SS Interview 10)

Teaching Beliefs	PSY/TB/U/MET	"So I'm not really particular about correcting their mistakes all the time because I don't think it's that important" (Val, SS Interview 3)

The next sections first review the survey questionnaire analysis process with examples provided from specific findings and their part in the development of the substantive theory.

6.3 Strand Two: Survey Questionnaire

As mentioned above, the intent of the survey questionnaire was to explore the prevalence of opinions on issues raised during the interviews and to use insights revealed from the teachers' responses to illuminate and clarify the categories' conceptual properties and dimensions. The analysis of the survey questionnaire was originally designed with one phase, but evolved to incorporate a second phase to help discern the main category and develop the substantive theory. The first phase of the analysis looked at the survey questionnaire data qualitatively much like the analysis of the interview data in the first strand. In contrast to the usual method of quantitative analysis with an emphasis on the "rhetoric of verification", this method involved a grounded theory approach to mine the "very rich medium for discovering theory" found in quantitative data (Glaser & Strauss, 1967, p. 185). In this approach, the analyst must relax the strict rules inherent in quantitative analysis in order to have the freedom to explore the data inductively just as she or he would do with any other form of qualitative data.

Glaser and Strauss (1967) lay out the means by which a researcher can conduct a grounded theory analysis of survey questionnaire data. They stress that "freedom and flexibility" are necessary in their approach, which will naturally lead to "new strategies and styles of quantitative analysis, with their own rules yet to be discovered" (Glaser & Strauss, 1967, p. 186). They underpin this approach with the use of "crude" or "general duty" indices:

> Since for generating theory we are only looking for general relationships of direction – a positive or negative relation between concepts, and not either precise measurement of each person in the study or exact magnitudes of relationship – it is easier, faster, and

> considerably more economical to use the crude index. Even when crude indices result in obvious misclassification of some cases, they still yield the information necessary for generating a grounded theory. (Glaser & Strauss, 1967, p. 191)

It is these crude indices of one or more items – which need only be dichotomized to indicate positive or negative relations – that can suffice to elaborate concepts, categories and their properties and dimensions. Further, if an analyst is employing survey questionnaire data exclusively and wants to develop a core category, the use of summation indices with two to six items is warranted (Glaser & Strauss, 1967). Discriminating power is gained in summation indices by comparison of the criterion variable (indicated through supposition from the data) with groups of indicators of a category. All items with a positive relation and all with a negative relation are then combined. This is a tentative area in terms of the precepts of grounded theory and related ethical concerns. If researcher make deductions which are not garnered directly from the data, they are in danger of forming what Glaser & Strauss (1967) refer to as "ought" (p. 194) categories – meaning that two variables 'ought' to have a positive relationship, even if the data do not point to this conclusion. Both Glaser and Strauss (1967) and Strauss and Corbin (1998) therefore stress that the researcher needs to be as explicit as possible when making decisions during research and particularly during the write-up to ensure or help validate the findings offered. The earlier comment on ethical behavior at the end of Section 5.3.1 bears repeating in this instance: "However, the researcher, not the research tool, might be the crucial factor in establishing 'authenticity' or 'fidelity' (Blumenfeld-Jones, 1995; Bogdan & Biklen, 1992; Cohen, Manion & Morrison, 2007; Hammersley & Atkinson, 1983; Lincoln & Guba, 1985)."

Another technique in Glaser and Strauss' (1967) approach which addresses categories other than the core category is the use of "consistency indices", which are simply a list of survey questionnaire items that all point to a specific category and relate "separately to the core index in the same consistent direction" (pp. 197-198). The use of the word "separately" in the statement is significant because consistency must be tested with indicators against the core index individually or subtle differences can be hidden. This is part and parcel of the constant comparative method for use with qualitative and quantitative data alike. All techniques in grounded theory analysis thus contribute to the consistency and explanatory power of concepts through their general relationships.

The final consideration in qualitative survey questionnaire analysis is the use of tests of statistical significance. Unlike typical quantitative analysis, the value of statistical analysis methods for qualitative comparisons "depends on the meaning of the association as it relates to the theory" (Glaser & Strauss, 1967, p. 201). This means that information in the survey is seen as a type of fact that has meaning only when the analyst reveals any "theoretical relevances [sic]" (Glaser & Strauss, 1967, p. 201). More specifically, Glaser and Strauss (1967) see tests of significance as "a strong barrier to the generation of theory while doing nothing to help it, since the resulting accuracy (if one can actually trust the test) is not crucial" (p. 200). For this reason, tests of significance were not initially considered in the first phase of the survey analysis.

However, in the second (improvised) phase of the survey questionnaire analysis, tests of significance were conducted to help develop categories and tease out the main category through the interplay of the survey questionnaire and interview data (once again, grounded theory analysis is a continuous process in which all strands of the research interweave to various degrees). This decision in one way runs counter to Glaser & Strauss' (1967) prescriptive advice above above analyzing quantitative data; however, it is consistent with their more general advice. This advice was later reiterated by Strauss and Corbin (1998), who cite that, "unless researchers are extremely constrained by either external pressures or internal mandates, they are pragmatists, connecting various available techniques to obtain desired results (Creswell, 1994)" (p. 30).

The statistical tests employed in this phase were simple 'correlational trials' used to help focus crude indices (beyond basic descriptive statistics and categorizing of survey questionnaire items which formed the crude indices). They were a way to get a fresh look at the data – to take a different perspective on the same phenomenon to overcome "analytical blocks" (Strauss & Corbin, 1998, p. 88). Kendall's tau (τ) was chosen as the small data set was non-parametric (by design and verified using Q-Q plots) and Spearman's coefficient was seen as an inferior test despite its common use by other researchers (Field, 2005). Tests of reliability such as Cronbach's Alpha were not performed as they would not aid the analysis since the test items were generated not for verification but for theoretical exploration (Glaser & Strauss, 1967). To illustrate the rationale behind this decision, consider Field's (2005) explanation of reliability:

> One way to think of this is that, other things being equal, a person should get the same score on a survey if they complete it at two different points in time (this is called test-retest reliability)….So, if we took two people *who were equally statistics-phobic*, then they should get more or less identical scores on the SAQ. Likewise, if we took two people *who loved statistics*, they should both get equally low scores. (pp. 666-667, *emphasis added*)

As emphasized above, tests of reliability depend on, and in fact are designed to measure, responses to a given or known quality or concept in the hope of returning consistent answers. Examining doctoral dissertations or major studies that rely exclusively on quantitative data indicates that their use of Cronbach's Alpha or similar reliability tests works from this principle. Most will include sections where they lament and/or attempt to justify low reliability measures when applied to large numbers of items and subsequently attempt to eliminate items until they obtain a suitably high value. Alternatively, the Alpha can also be artificially inflated by including larger numbers of items (Field, 2005). All of these measures are based on an assumption of verifying the item's ability to test for a given construct. This is not meant as a criticism of those studies, but merely to point out that they use methods which start with a known construct and then attempt to verify their items and the instrument in measuring it – which is antipathetic to discovering concepts and relationships as per grounded theory. In short, the survey questionnaire for this study was constructed with individual items meant to open up concepts for discovery rather than verify known concepts or measure accurately degrees of their effects. Each item on this survey questionnaire was generated from an area of interest, not a well-defined construct.

Logistically, unlike the preceding interview data, the start of this phase of the analysis did not begin by allowing the data to reveal concepts that were then later formed into a storyline(s) eventually to shape the emerging theory. Instead, the codes, categories and relationships that emerged during the initial interviews were used as the starting point for constant comparisons with the survey questionnaire data. This is a significant distinction which can best be understood through Glaser & Strauss' (1967) overview on how to generate theory using a qualitative analysis of survey questionnaire data:

> In generating theory as it emerges, the analyst first discovers two-variable relationships; second, he discovers their elaboration. Then he moves into a third stage, in which he starts generating possible further elaborations of two-variable relationships within the previous elaboration, using the second strategy of arranging variables to test theoretical orderings. He looks through his data to find indicators for the concepts he thinks are related in theoretical ways to his emerging theory. Then he arranges his elaboration tables to test if they bear out his hypotheses (for suggestion, not verification), or to discover what actually happens. *At this stage of the analysis, he is theoretically sampling his data as directed by his emerging theory and he is actively directing his further runs accordingly; much as the field researcher directs his final work toward theoretically sampling data on hypotheses for filing gaps and answering the remaining questions in order to saturate categories.* (p. 210, *emphasis added*)

In the above guidelines, Glaser and Strauss (1967) are assuming that researchers are relying exclusively on survey questionnaire data from which to tease out their theory. In the current study, the analysis of the survey questionnaire began with simple 'descriptives' related to each survey questionnaire item and looked for any significant results or patterns. Next individual items were used to locate concepts that related to gaps in the developing categories (as emphasized above). As mentioned in the above quotation, this is a form of theoretical sampling in that it is a "purposeful selection of data for consideration" rather than a blanket and open investigation of all the data. Incidentally, many concepts found in the survey questionnaire data such as the multifarious variations between demographic groups were left undeveloped if they did not appear to bear directly on categories and/or provide insight into their elaboration. For this reason, the raw data collected for this study may prove invaluable in future studies.

Below is an overview of the survey questionnaire analysis procedures with pertinent general findings, followed by an illustration of how the constant comparative method was conducted for five categories related to "professional experience". This method of analysis and reporting is in keeping with Glaser and Strauss (1967), who suggest that the analyst "take some liberties" (p. 203) in her or his presentation of data owing to both the extent of the data and the desire to communicate findings effectively to researchers and lay people alike. However, this does not mean that the data have been in any way manipulated or distorted, but that the researcher's main

purpose is to communicate significant relationships, not to overwhelm readers with statistics to verify her or his work.

Results for all survey questionnaire items are found in Appendix J, with percentages provided for three groupings of the participants: all instructors (in black); full-time instructors (in green); and part-time instructors (in blue). This division based on working status reflects indications from the interview analysis that this would provide valuable insights into the developing categories. These responses were likewise considered throughout the remaining strands of the research.

The formal analysis began with an exploration of items in which the full-time and part-time faculty's responses were in opposition (46 of the 160 items – colored light blue in Appendix J). Table 6.3 details these items along with possible explanations for the variance and their relation to developing categories. The next step in the analysis involved looking at items with significant differences in degree between full-time and part-time faculty (Appendix L). Next individual items where the full-time and/or part-time faculty responded in overwhelming support of or rejection of an issue were then compared (Appendix M). Finally, 11 items which had significance between the groups – even though they did not meet any of the above criteria – were considered (Appendix N).

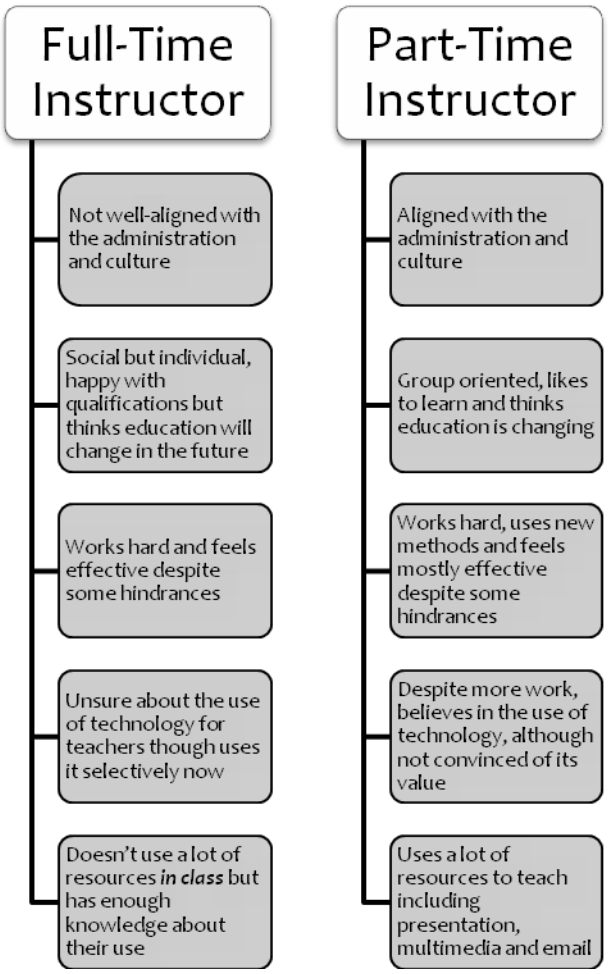


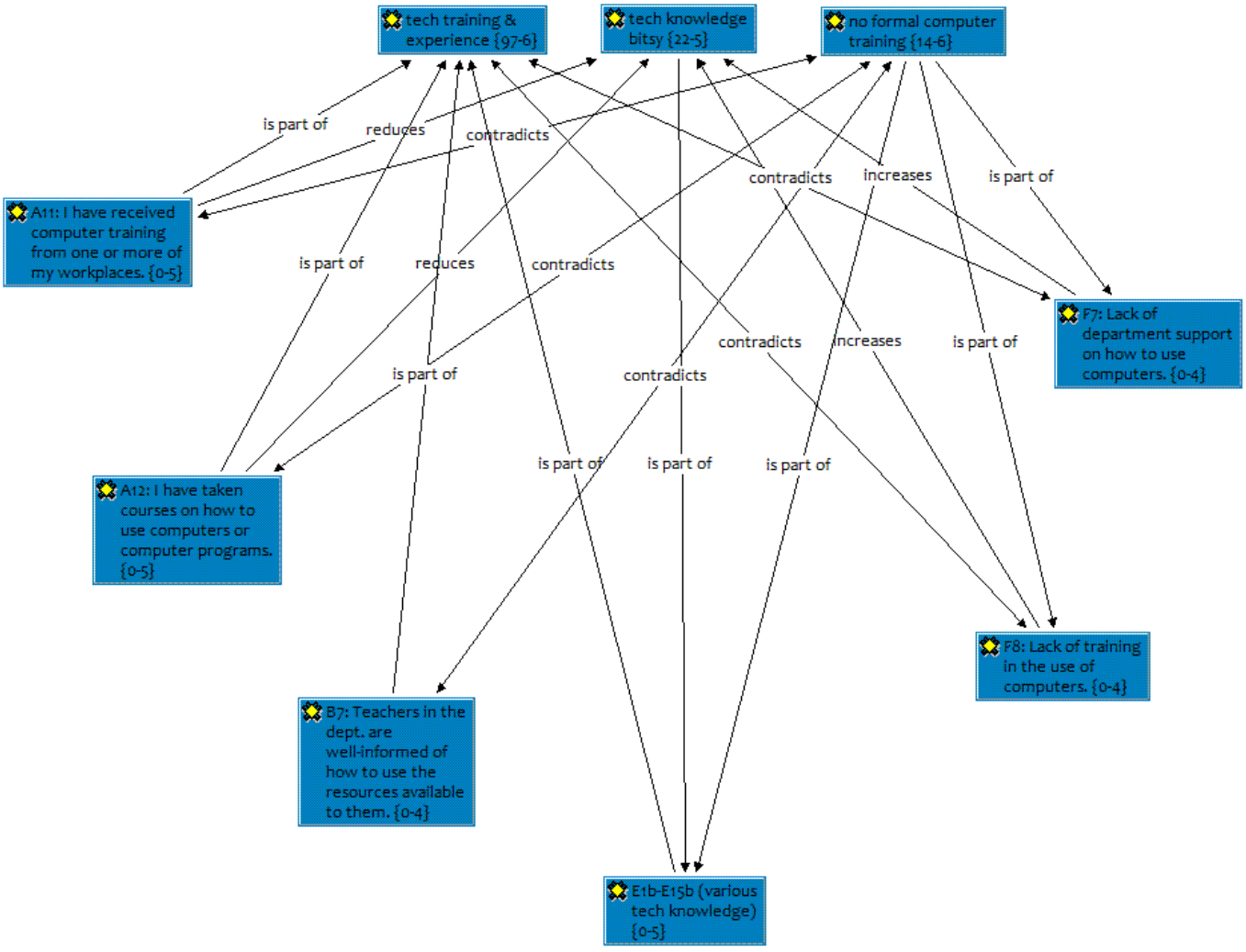
Figure 6.5. Main points representing a composite view of full- and part-time instructors from the survey questionnaire data (details in Appendices O and P).

A composite view of the full-time and part-time instructors from the survey questionnaire data was then constructed as a way of fleshing out their similarities and differences (Appendices O and P). From this examination, four significant differences stood out: the relationship with the administration and culture, sociability, professional development, and the attitude about the use of technology in the classroom (Figure 6.5). These four areas became important aspects of the substantive theory that developed later.

Finally, the largest component of the analysis was to make direct comparisons of the survey questionnaire items with individual categories' properties and dimensions as needed for their

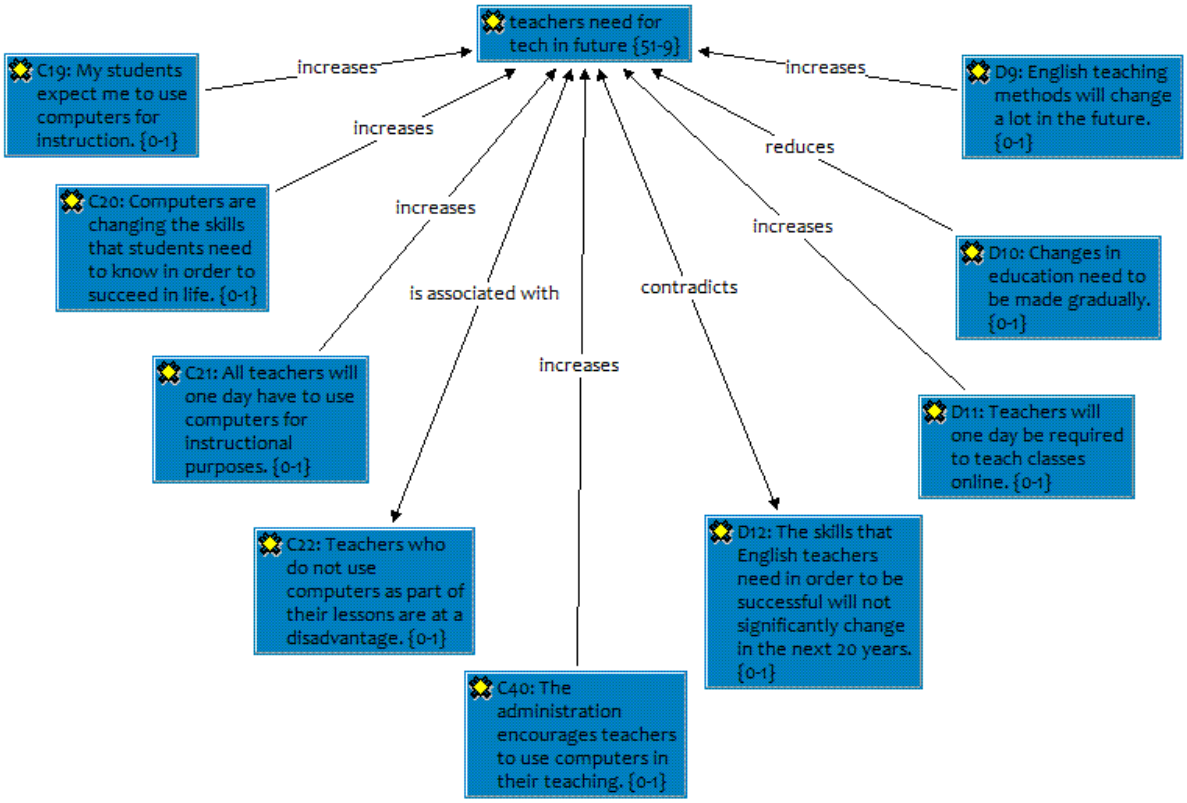
elaboration. As mentioned above, it would be impossible to expound upon all of the relationships considered during these comparisons; therefore a slice of the data is presented which encapsulates the process that was applied to all relevant categories.

For consistency's sake, the survey questionnaire items which related to professional experience are demonstrated as they were applied to the developing code families of "tech training and experience"; "tech knowledge bitsy"; "no formal computer training"; "teachers' need for tech in future"; and "seeking training and knowledge". These categories were divided into three groups: the first three categories related to current and past learning, while the second and third related to external and internal needs (respectively) concerning technology knowledge and training. Table 6.7 shows the survey questionnaire items which pertain to each category with dimensions and samples of related quotations. A parallel technique involved using simple diagrams to mull over the associations – such as in Figures 6.6, 6.7 and 6.8, which show the three groupings for professional experience with the main codes (on the top) and related survey questionnaire items fanned out below relationally. Each of these three groupings was then developed further by applying significant correlations with other items on the survey questionnaire to each target item as a way of clarifying the dimensions of each. Quotations which link with each category were then re-examined in light of these dimensions (and other 'descriptives') to reveal any insights. Figure 6.9 provides a visual representation of the process by showing a sample of three quotations for each category and a sample of two significant correlations (one positive and one negative, where possible) for each survey questionnaire item. Thus, this technique of using crude indices based on survey questionnaire items and quotations was developed to inform the dimensions and properties of each category. This iterative process was performed throughout the analysis of the last two strands of data collection which necessitated numerous reformations of the categories and their properties and dimensions. To reiterate, the data collection and analysis of each strand including the survey questionnaire analysis can be seen as one continuous and deliberate process and not the linear procession of loosely-connected strands that has been employed here for illustrative purposes. Below is a brief look at the technique used to determine significant correlations among the survey questionnaire items.



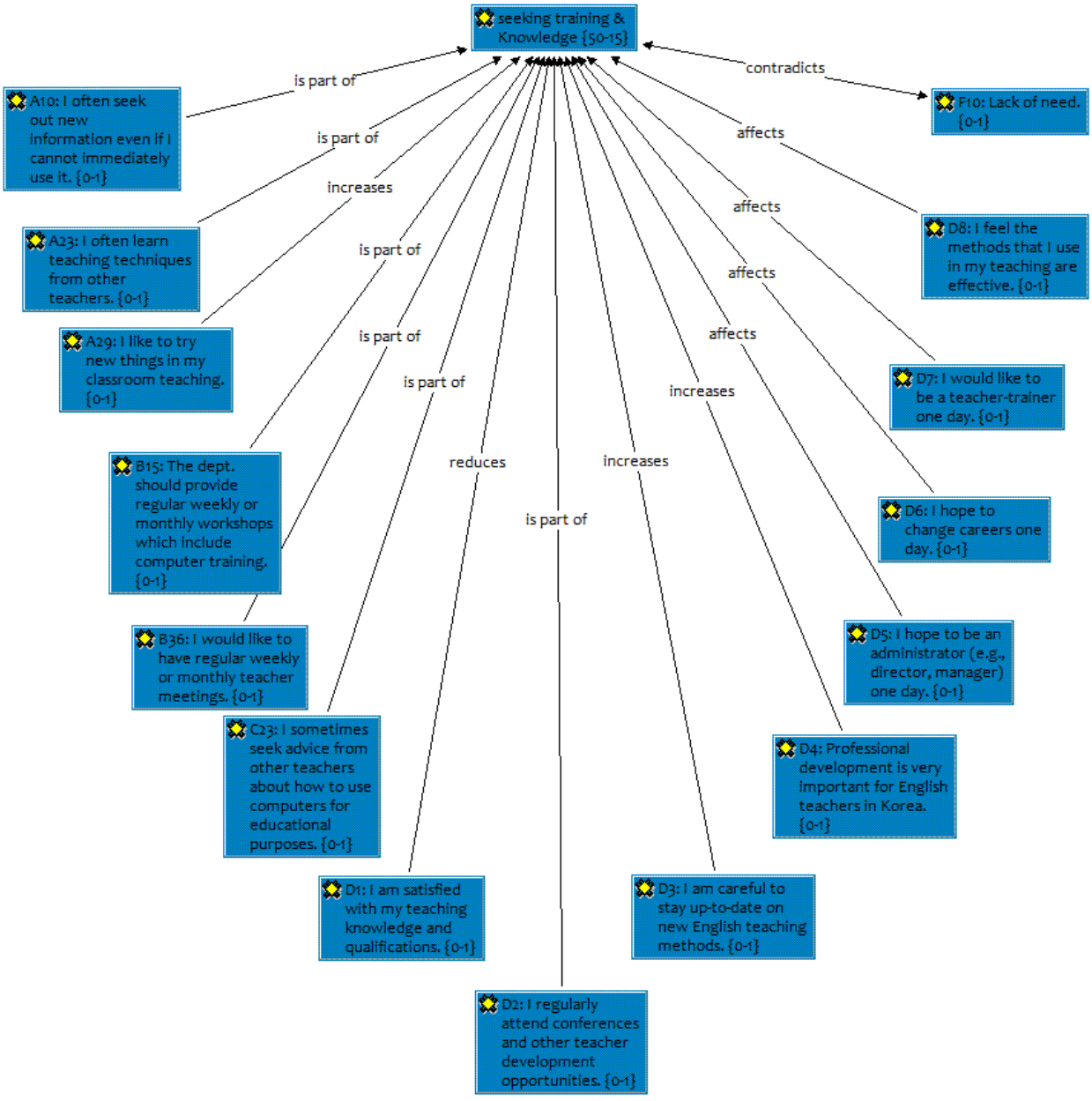
Note. The three blue boxes on the top indicate open codes; the six lower blue boxes indicate survey questionnaire items; lines indicate relationships.

Figure 6.6. Overview of the first group of properties of *professional experience* with relevant survey questionnaire items.



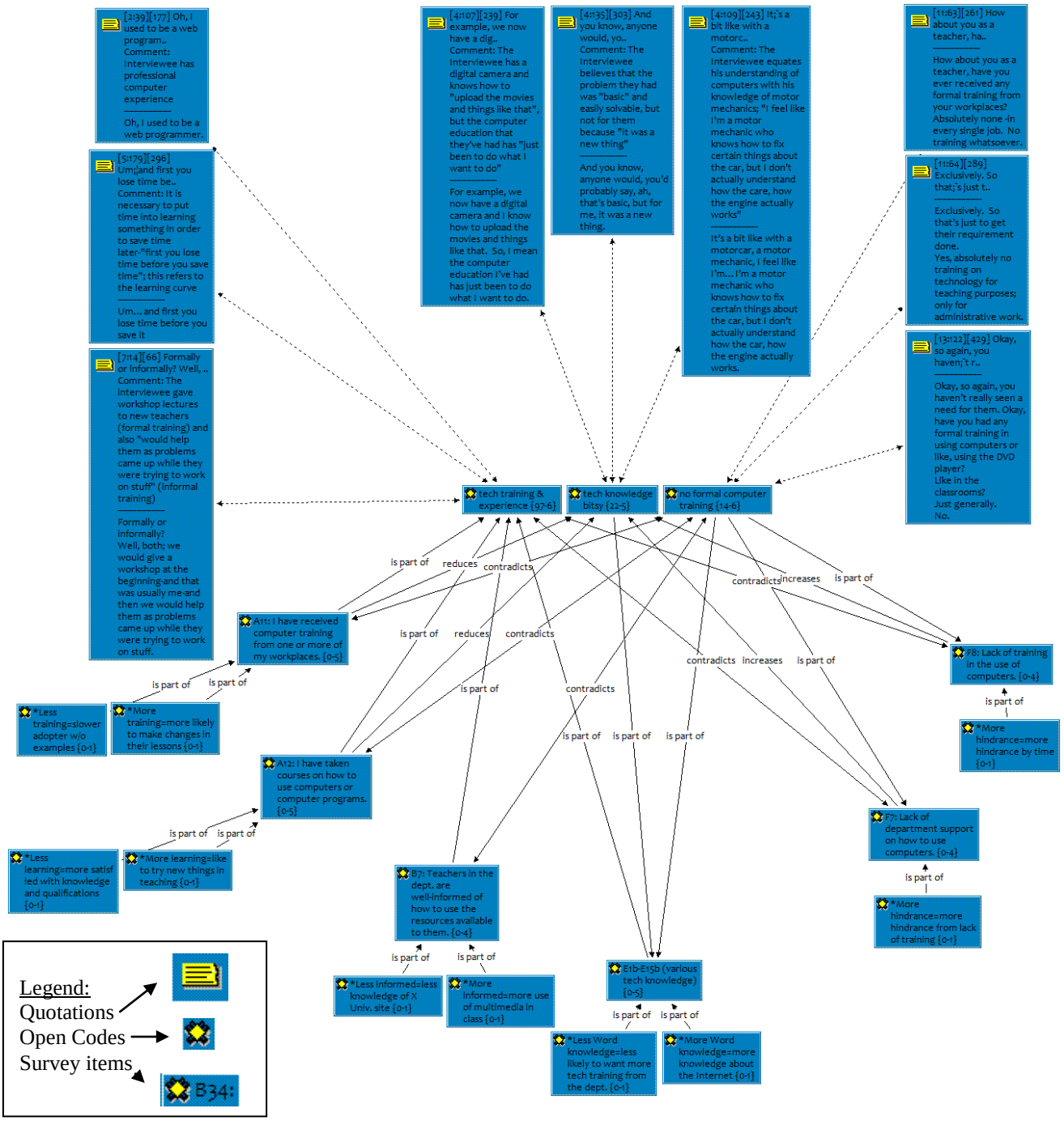
Note. The blue box on the top indicates an open code; the six lower blue boxes indicate survey questionnaire items; lines indicate relationships.

Figure 6.7. Overview of the second group of properties of *professional experience* with relevant survey questionnaire items.



Note. The blue box on the top indicates an open code; the fifteen lower blue boxes indicate survey questionnaire items; lines indicate relationships.

Figure 6.8. Overview of the third group of properties of *professional experience* with relevant survey questionnaire items.



Note. The three blue boxes in the center indicate open codes; the sixteen lower blue boxes indicate survey questionnaire items; the top nine blue boxes indicate quotations; lines indicate relationships.

Figure 6.9. Grouping one of *professional experience* showing sample quotations and correlation-based dimensions.

As previously stated, tests of significant correlations were employed to reveal any hidden relationships among concepts. As results of the survey questionnaire items were not normally distributed, non-parametric tests of correlation were indicated. Among these, Kendall's tau (τ) was chosen over Spearman's correlation coefficient owing to its better fit with "a small data set with a large number of tied ranks" and its overall greater accuracy (Field, 2005, p. 131). Further, following the commonly used measure of the correlation coefficient effect size (± .1 represents a small effect; ± .3 is a medium effect and ± .5 is a large effect), only correlations with an effect size of ±.2 were considered (Field, 2005, p. 111). Correlations for all survey questionnaire items were run and significant findings were noted for each relationship (these are listed under each item in Appendix J). As mentioned earlier, care must be taken in interpreting causality in correlations as there may be a third variable involved and given the fact that the significance gives "no indication of the direction" of the relationship (Field, 2005, p. 127). This is yet another murky area of statistical procedures that relies on the analyst's interpretive skill and which lends further credence to the need for research designs which include qualitative elements such as the current study.

6.4 Strand Three: Classroom Observations

Participants in this strand of the study were selected among the full-time instructors based on their positions on 13 properties related to the main emerging categories. Many of these properties find parallels in more than one category and therefore were chosen for their likely ability to provide coverage of most of the main categories. As illustrated in Figure 6.12, these include (top to bottom – not ranked in importance):

1. Risk taking: How much willingness is there to take chances in their teaching?
2. Image: How much concern is shown about their image as a teacher?
3. Seeking learning: How much effort is spent on learning new teaching ideas?
4. Park Univ. site use: How much and in what way is the Park Univ. site employed?
5. Sociability: How important is the teaching community to their teaching?
6. Efficiency: How prominent is efficiency in their teaching beliefs?

7. Cultural alignment: How aligned are their teaching ideas and methods with the school culture?
8. Real materials usage: How much concern is shown for authentic materials usage?
9. Student-centered ideas: How aligned are their teaching ideas and methods with student-centered ideas?
10. Influence of learning experiences: How aligned are their teaching ideas and methods with their own learning experiences?
11. Technology use in class: How often and in what way do they employ technology in their classroom teaching?
12. Technology training: How much informal and formal technology training have they had and what value do they place on it?
13. Attitude toward technology: How important do they consider technology in education to be today and in the future?

After the data were reviewed, participants in the interviews who scored cumulatively high in these categories were considered suitable for participation in the classroom observations. This was decided after mulling over the participants' scores for each property in relation to their individual total and to that of the group. In as much as was possible, it was important to include participants who collectively represented relative highs and lows for each of the above 13 properties in order to provide the most advantageous theoretical sample (see Section 4.3). Stated briefly, the theoretical sample for strands three and four of the study was selected according to their dimensional range on individual properties (in as much as was possible) and not generally for their overall position relative to other participants. Further, three caveats must be observed with regard to the ranking and selection of the candidates.

First, the rankings for each property are based on interview information and therefore are relative to the average of other participants in the study. This is to say that a high or low ranking does not necessarily represent an absolute value for any given property, and therefore conclusions or assumptions about the candidates should not be drawn from this information. For instance, a low ranking on "technology training" may, in fact, represent a medium or high ranking at other universities or when considering other aspects of this property.

Second, the 13 properties listed above should not necessarily be thought of as equivalent concepts with those commonly portrayed in the literature. Each property was formed through

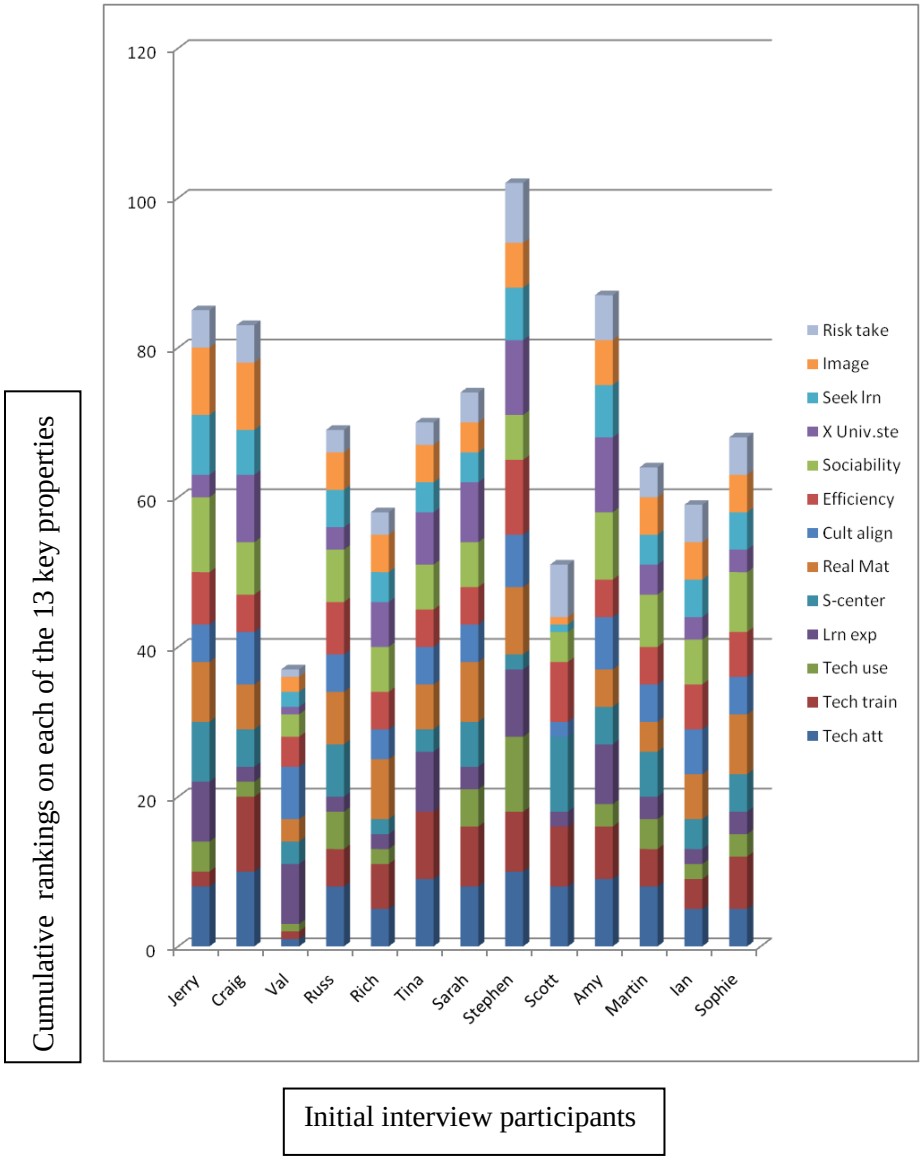


Figure 6.10. Interview participants' rankings on key properties of the main emerging categories.

constant comparisons of the data in the study exclusively and therefore may not include some expected elements from the literature while at the same time containing others not typically

associated with them. For example, in the literature, there are numerous interpretations of communicative language teaching (Mangubhai, Marland, Dashwood & Son, 2005), including those related specifically to the feature of student-centered learning. One example, Auerbach (1986), as part of a list of factors essential to competency-based education (CBE) in ESL, describes "student-centered instruction" (pp. 414-415) as a theoretical concept of customizing curricula and instruction to students' individual progress rates and targeting gaps in their competence. Among the 13 properties in this study, "student-centered ideas" do not include curricula decisions (as they are for the most part beyond the control of teachers) or the ability to tailor instruction and materials to individual students' needs (mostly owing to issues of large class sizes and shared syllabuses and testing). Moreover, Auerbach's (1986) conception of student-centered learning does not include general classroom organization techniques and conceptions of teacher-student roles and responsibilities – among other lesser concerns – found in this study.

Third, while it would have been ideal to select as many participants as necessary to cover all 26 dimensional ranges (highs and lows for each of the 13 properties), this was simply not feasible or sensible, and in the final analysis proved unnecessary.

Consequently, the first three participants to be chosen were Jerry, Amy, and Stephen (see Table 6.4). Jerry ranked high on levels of sociability, image, attitude toward technology, influence of learning experiences, student-centered ideas, real materials usage and seeking learning while low on technology training, Park Univ. site use, and technology use. Amy ranked high on Park Univ. site use, attitude toward technology, sociability, and learning experience; however, she ranked low on technology use. Stephen ranked high on attitude toward technology, technology use, efficiency, Park Univ. site use, influence of learning experiences, real materials usage, and risk taking while low on student-centered ideas. Three further candidates were selected in the event that additional information might be needed – these included Craig, Tina and Russ. Craig ranked high on attitude toward technology, technology training, Park Univ. site use, and image; however, he ranked low on technology use and influence of learning experiences. Tina ranked high on attitude toward technology, technology training, and influence of learning experiences while low on technology use, student-centered ideas, seeking learning, and risk taking. Finally, Russ ranked high on attitude toward technology, and low on influence of learning experiences,

Park Univ. site use, and risk taking. Craig and Tina did eventually take part in the classroom observations; however, theoretical saturation occurred before Russ was asked to participate.

In order to obtain a broader range of data in the lessons, participants were asked to choose one lesson for observation which was typical of their teaching and a second lesson which was exemplary or significantly different in terms of technology usage (or normal lesson activity). For each 75-minute lesson, two forms of data were collected: a handwritten log of observations and significant events, and an MPG video of the entire lesson. Logs were labeled at the top with the participant's name, lesson number and date while times were noted along the left margin line at the start of any new action by the teachers or students (see Appendix E). Additionally, any thoughts or questions that occurred to the researcher were written in the margins and on the back of the adjoining page. Participants were emailed or hand delivered an explanation beforehand of what to expect during the observations (and subsequent post-observation interviews) to reiterate prior verbal conversations on the topic (see Appendix Q).

Table 6.4
Participants' General Background Information

Participant	**Age**	**Gender**	**Highest degree obtained**	**Years of teaching experience**	**First language**
Jerry	30-40	M	Masters	11-15	English
Amy	30-40	F	Doctorate	11-15	Korean
Stephen	30-40	M	Masters	6-10	French
Craig	30-40	M	Masters	0-5	English
Tina	30-40	F	Masters	6-10	Korean

Note. Only general information provided to protect participants' anonymity.

Analysis first involved going over the written log and highlighting any concepts or actions which corresponded with the list of established categories. These were then cross-checked with survey questionnaire responses (participants in this strand of the study agreed beforehand to allow their survey questionnaire results to be known by the researcher) and interview quotations to verify data or in some cases identify discrepancies. Codes and code families were adjusted to reflect the

new information with memos such as the following playing an instrumental role throughout the process:

> The issue of whether to write on the chalkboard (chalkboard use) or not comes to a head when you consider preparation (preparations for class), class time expediency (effectiveness/efficiency) and customization of lessons (adapting classes & materials). If you write on the board, you can be more spontaneous and customize your answers to what students say, but you have to write on the board for every class (benefits of repetition). So, if you have more than one section of the same class (the same lesson taught more than once), you would need to write two or three times for one lesson, whereas typing in a word processing document would need to be typed only once (benefits of repetition, tech works, tech use in teaching). But if you type the lesson with specific answers or information and it is prepared in word processing files, then you cannot customize the material for each class (tech resistance & issues). So you have more preparation time out of class (preparations for class), but in the end you would save time in class (time, contact hours in language teaching) for the students and have less actual work in writing on the board (personality).
>
> PowerPoint is seen as further down the preparation road; PowerPoints require more preparation time than word processing documents, so if time is an issue Word processing documents might seem more desirable to use (PowerPoint issues, preparations for class, tech use in teaching).
>
> Interestingly, Jerry is "averse" to using chalk for health and other reasons (“chalk is old-fashioned”, image), so is beginning to use word processing programs with prepared materials, but hasn't started using PowerPoint as much (even when he says the benefits are obvious to himself) because of the preparation time issue (preparations for class, tech use in teaching, PowerPoint issues). This seems to relate also to his more considered nature (risk taking) and perhaps his concern with his teaching image (image) or more generally perhaps his teaching beliefs (teaching beliefs).
>
> I must make a note of this and ask during the next interview: Why is “old-fashioned” an issue exactly? Could you compare and contrast the preparation and use of Word

> processing and PowerPoints? Do you think students or the administration have any expectations for their use? What do you think students would think if you showed that you were learning to use PowerPoint in front of the class? What is your ideal balance or conception of the interplay between preparation and on-the-fly customization of lessons? (Author, 11/09/2008)

The next technique involved viewing the MPG of the lesson and comparing with the notes as the lesson transpired. Although the minutes and actions proved accurate, any corrections or notes were added to the margins of the original log. A subsequent viewing was used to add any questions or inferences to be drawn from the lesson for the subsequent interview (including notes from memos as illustrated above). This additional viewing was not possible in some instances owing to short intervals between the observations and the post-observation interviews or other scheduling conflicts.

Logistically, as with the other strands of the study, a slice of data is illustrated which demonstrates the process conducted for the main aspects of all related categories. For this strand, concepts and insights related to "chalkboards" will be presented. It should be noted that "chalkboards" began its code life as "chalkboard use" and was originally considered as part of the category (or code family) adaptations. At this stage, it was being reanalyzed for its fit as an aspect of the category "class organization techniques". Figure 6.11 shows a rough sketch of this process with a sample of the codes, quotations, and related survey questionnaire items, while Appendix R illustrates the set of 47 applicable survey questionnaire items which were compared with the classroom observation data. Out of these 47 items, only the nine which related directly to "chalkboards" were compared with the observation data in this case (items indicated in red in Appendix R). Although each participant's responses during the initial interviews and survey questionnaire were matched individually with her or his observation data for each area of the analysis, in the interest of confidentiality, Table 6.5 instead shows an anonymous mix of all the participants' responses in order to illustrate the overall process. These data were used for two express purposes: relating categories and properties and building up individual teacher profiles for use in comparison with the final theory (presented in Chapter 9). The former allows more abstract and detailed comparisons of aspects, while the latter provides a more holistic and

practical view that takes into consideration the interplay of all categories as they relate to teachers and their teaching.

The codes and aspects related to "chalkboards" that were examined during this process were numerous and included: preparations for class, use of supplements, OHP experience, Park Univ. site use, photocopy dictum and the Park Univ. site, teacher willingness to make copies, contact time, effectiveness/efficiency, adapting classes and materials, classroom adaptations on the fly, benefits of repetition, tech works, tech use in teaching, tech resistance and issues, time, experiences as a student, bias for graphics, more kinetic or active nature, writing vs. computer, contact hours in language teaching, available resources use, influence of available resources, physical classroom considerations, personality, PowerPoint issues, "chalk is old-fashioned", image, risk taking, and teaching beliefs. As reflected in the length of this list, this process began with a broad range of codes and aspects (many of which contained shared elements) that were subsequently edited down as the study progressed.

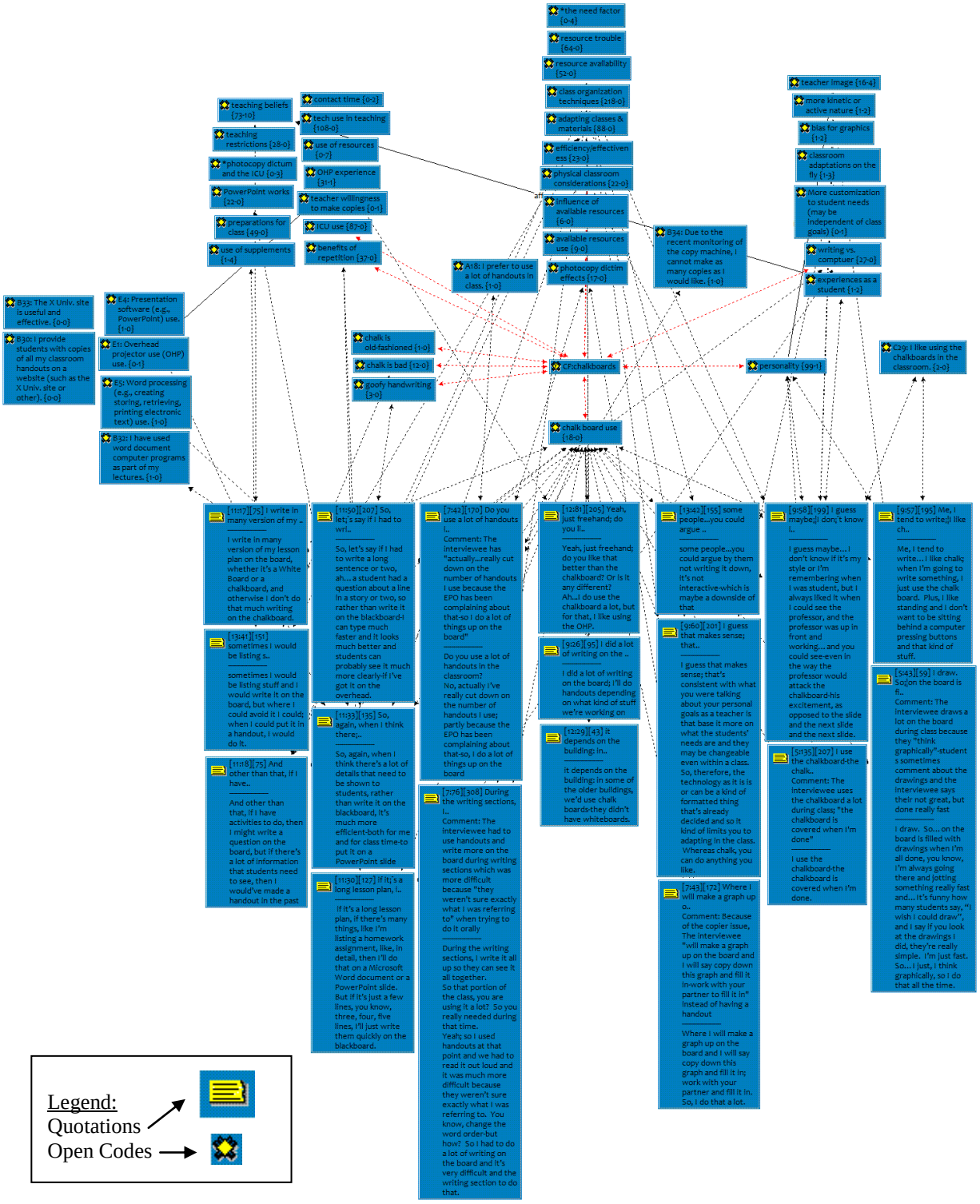


Figure 6.11. Design outline of *chalkboards* (*chalkboard use*) with related codes and samples of quotations.

Table 6.5
Consistency Check Showing an Anonymous Mix of Matching Interview, Survey Questionnaire and Observation Data

Item	Response	Matches interview data? (Credibility)	Related quotation from semi-structured interview	Matches observation data? (Credibility)	Related note or evidence from observation	Insights
A18: I prefer to use a lot of handouts in class.	Agree	Yes	"Usually they just print things out …I don't like to write any more on the chalk…on the board anymore"	Yes	"3:35: …T takes book to desk—asks Ss to look at supplementary review paper…"	Most teachers give students info through print, technology or chalk; each tends to bias toward one source, though all seem to use more than one
B30: I provide students with copies of all my classroom handouts on a website (such as the Park Univ. site or other).	Strongly agree	Exactly	"I put them up on the cyber campus; they have to download them, print them out and bring them to class-and so they have things with them always"	Yes	"12:32: T: Do you have the print outs? (Some had trouble printing out)"	Supplementary sites are used by most to lessen administrative tasks – but the issues of consistency and responsibility heavily mediate their use
B32: I have used word processing document computer programs as part of my lectures.	Strongly agree	Exactly	"…what I've taken to doing also in the past few weeks, is just using Microsoft Word in lieu of the physical chalkboard"	Yes	"3:45: T changes to word processing program. Switches back to PPT, then to black…"	Word processing programs serve two functions for teaching (lecture notes and handouts), so an overwhelming majority employs them and knows about their use.
B33: The Park Univ. site is useful and effective.	Strongly agree	No	"I mean, the only reason that I'm using the Park Univ. site now is because of the copying situation!"	Yes	"1:45: T: We are going to start here with this…Check Park Univ. site before class there will be a vocabulary assignment"	Some teachers are reluctant to use sites for class unless forced to, directly or indirectly
B34: Owing to the recent monitoring of the copy	Strongly disagree	Not sure	"The main reason that I'm doing this is because of	Not sure	Evidence was not found in the observation data	This teacher is choosing materials

machine, I cannot make as many copies as I would like.			the copy problem that we had and also because I was spending so much time copying things for my hundred plus students"			use based on expediency and outside pressure – the issue of copy use seems to be related more to teaching beliefs
C29: I like using the chalkboards in the classroom.	Strongly disagree	Yes	"One reason is um…ah, if I don't use it, the only alternative is to use the chalk board…and I, I just kind of have an issue with using chalk in the 21st century"	Yes	Participant did not use chalkboard during either lesson	Chalkboards have esteem issues for this teacher, even to the point of choosing other means. Thus, some teachers may choose tech use simply because chalk is "old fashioned"
E1: Overhead projector (OHP) use.	Very often	Not sure	"Ah, OHP – I've used that before when I didn't have a computer, but I definitely prefer the computer"	Not sure	Evidence was not found in the observation data	OHP seems to be related to the image issue but also is compared to computers as inferior in terms of efficiency
E4: Presentation software (e.g., PowerPoint) use.	Often	Yes	"But then, that's where the PowerPoint thing is nice because I'm not bound behind the desk. I just have to click it – click the mouse to go to the next slide, and so I'm standing up all the time…"	Yes	"3:45: T changes to word processing program. Switches back to PPT then to black…"	It is important for the teacher to be able to interact with the class freely. Computers and some programs may hinder teacher/student interaction
E5: Word processing (e.g., creating storing, retrieving, printing electronic text) use.	Sometimes	Yes	"…but now I really hate using the chalkboards. I find it so much more convenient to type stuff onto a white word processing document or that's…been prepared already"	Yes	"9:37: T displays game rules on screen. T: Look at handouts…Teams divided into 3 parts…"	T uses word processing as a chalkboard proxy owing to its convenience. Also the issue of preparation carries various effects

In summary, this strand of analysis involved collecting all related codes and expanding their aspects before merging or realigning them repeatedly for best fit based on a three-fold comparison among interview, survey questionnaire, and observation data (and subsequently with post-observation data during the fourth strand). Final insights revealed concerning chalkboard use are given in Figure 6.12.

Figure 6.12. The main insights indicated in Strand Three concerning the code *chalkboard use.*

6.5 Strand Four: Post-Observation Interviews

All interview MPG videos (10 in total) were loaded into Atlas 5.2.1 as primary documents in the same fashion as the written transcripts. A decision was made not to transcribe these interviews on two grounds: first, transcribing the interviews in their entirety would serve only to aid a line-

by-line analysis, which was not methodologically prescribed at this stage of the analysis (Strauss & Corbin, 1998); and second, owing to the length of the interviews, it would not have been possible to transcribe and analyze them line-by-line between observations as they were often concurrent. Moreover, Atlas 5.2.1 allows for the selection of video segments which are saved as quotations to be used equivalently with written quotations. In this way, each interview was scanned for significant information based on previous coding which yielded video segments of various lengths (usually between five and thirty seconds each) which were marked as significant quotations and used to inform the structure of the web of relationships that led to the forming of the central category. As explained in other stages (highlighted in Section 6.2), the constant comparative method was similarly employed in this final strand of the study.

As the findings for this strand are varied and for the most part related to defining and honing existing code relationships, the specific findings for this section are subsumed under the central category development presented in the next section.

6.6 Central Category Development: Synthesis of the Substantive Theory

At this stage in the analysis, three main foci in the code relationships had surfaced: teachers' internal concerns or "teacher psychodynamics" (generally, beliefs, personality, and goals); external concerns or "administration & infrastructure (A&I), student variables, and teacher community" (generally, administration, infrastructure, student variables, and teacher community); and the negotiation of the two or *what works* (generally, preparation, change and adaptation). Once these three domains were identified, further organization of the codes was possible. Codes naturally found their place within the new three-domain model which led to a more accurate recoding as mentioned above in Section 6.2.1. As illustrated in Figure 6.13, the first domain, teacher psychodynamics, contains 10 categories: "teaching beliefs", "learning experiences", "work ethic", "attitude toward technology", "efficacy", "development", "innovativeness", "sociability", "attitude toward authenticity", and "personality". The second domain, administration & infrastructure (A&I), student variables, and teacher community, contains six categories: "administrative issues", "Korean setting", "resource accessibility &

dependability", "technology training", "student variables", and "teacher community". The final domain, *what works*, contains eight categories: "teaching practices", "roles & responsibilities", "community sharing", "use of resources", "satisfaction & self-efficacy", "position", "bias", and "time".

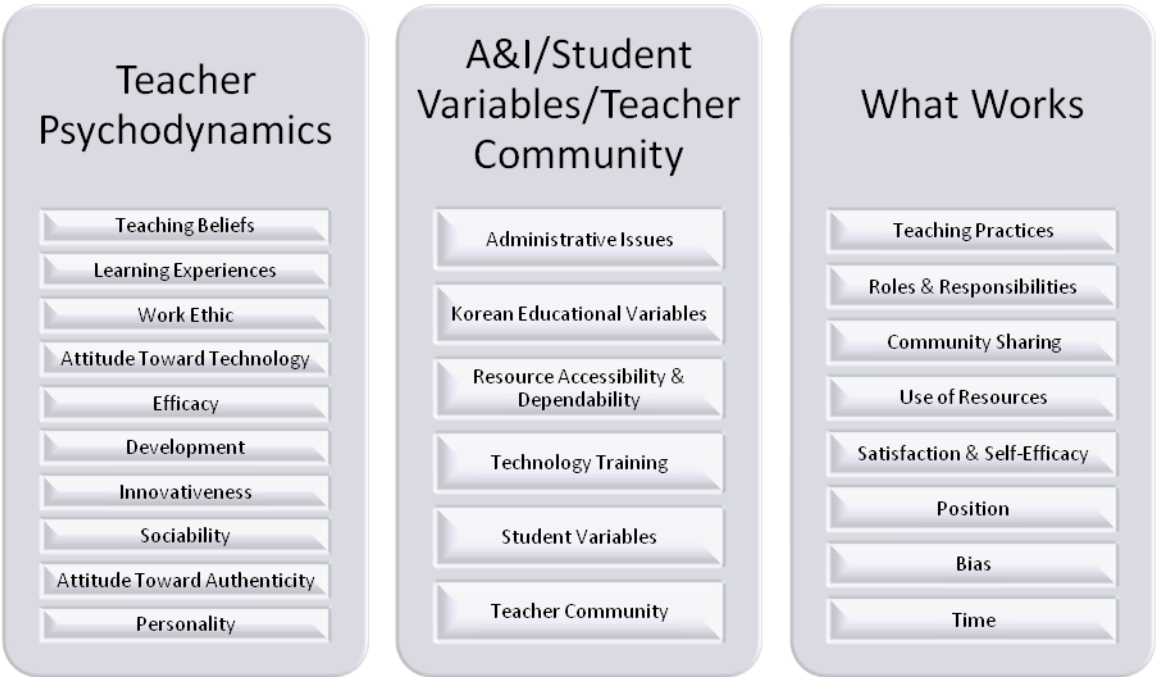


Figure 6.13. The three domains and related categories of the substantive theory "what works".

The resulting substantive theory "what works" became the unifying dynamic which provided the background and basis for teacher decision making, including decisions regarding the possible use of technology both in and out of the classroom. This theory is fully developed in Chapter Seven.

6.7 Summary

Chapter Six presented an overview and examples of the analysis and findings from each of the four strands of the research. Details of the initial semi-structured interviews (Strand 1), survey questionnaire (Strand 2), classroom observations (Strand 3), and post-observation interviews (Strand 4) helped to illustrate specific examples of the process involved for each strand. This was done for two main reasons: first, including all the analysis and findings would be overwhelming and unreadable in this context; and second, this method helped maintain a consistent line of thought that can be followed through connections in the presentation of each of the four strands.

In Section 6.2, an overview of the initial semi-structured interviews was given with details of the analysis procedures employed in Atlas.ti, 5.2.1. The ease of coding which was consistent with grounded theory procedures was likewise shown. Two main forms of coding were given in this process: open codes and in-vivo codes (which are codes labeled from words or short phrases from the participants). The use of visualizations through 'network views' aided the foundation and exploration of the central category that later emerged. Analysis and findings of the interviews were then discussed, including 132 initial codes which were eventually grouped into 45 categories (code families in Atlas.ti, 5.2.1). Analysis of one category, adaptations, was illustrated through visualizations and memo use. The need for contextual information to determine the causality and direction of relationships was also emphasized. Finally, the need for a new coding scheme based on the development of the central category (from the emergent theory of "what works") was given along with specific related examples.

An outline of the survey questionnaire analysis began Section 6.3 with the justification for employing Glaser and Strauss' (1967) procedures in a qualitative approach. Procedures for using "crude" and "consistency indices" were listed along with the importance of grounding any deductions within the data to avoid 'ought' category formations. Another important issue with this qualitative approach is the belief that tests of statistical significance are not only unnecessary, but can also hinder theoretical analysis of the data. Cronbach's Alpha was highlighted as one such test normally employed by researchers, but seen as unnecessary within Glaser and Strauss' (1967) framework. However, despite these drawbacks, the second phase of

analysis did involve the use of some statistical procedures to aid the development of the central category. This was shown as consistent with grounded theory and later justified by Strauss and Corbin (1998). Findings from the survey questionnaire analysis as they were compared with pre-established codes from the initial interviews were then discussed. The decision to analyze the survey questionnaire based on differences between full- and part-time instructors provided the foundation for the four-step process involved. First, items which were in opposition were explored. Next, significant differences in degree of agreement or disagreement were considered, followed by items which showed an overwhelming degree of support or rejection between the groups were listed. Finally, eleven items, which did not fit into any of the above categories but were deemed important, were compared with the other data. This analysis helped to form composite views of full- and part-time instructors which were further shown to aid the recognition and elaboration of the central category. Five categories related to professional experience were then used to illustrate the process of teasing out and elaborating categories' properties and dimensions. The selection and use of Kendall's Tau in this process, owing to its fit with the study data, were then highlighted.

In Section 6.4, the process for the selection of participants in the classroom observations was detailed. Thirteen properties selected for their importance to main categories were used to determine a set of participants that would provide the widest array and variation for key aspects of the study. These properties included risk taking, image, seeking learning, Park University site use, sociability, efficiency, cultural alignment, real materials usage, student-centered ideas, influence of learning experiences, tech use in class, tech training and attitude toward technology. It was stressed that these concepts were unique to the study and therefore shared some but not all aspects commonly associated with them while including some elements not normally found in the literature. Next the basis for the six participants' selection based on their dimensions on each of the above properties was given. They included Jerry, Amy, Stephen, Craig, Tina, and Russ (theoretical saturation [discussed in Section 4.3.3] was reached, thus negating the need for Russ' participation). It was stressed that ideally more participants could have been selected for each of the 13 properties; however, this was found to be unnecessary and impractical. Details of the observation techniques included the observation of two lessons of each of the participants – the first represented a typical lesson and the second an exemplary or "significantly different" lesson in terms of technology use (and/or pedagogy). MPG videos of the entire lesson and observation

notes were taken and used for subsequent interviews in the final strand of the research. Videos and notes were checked for accuracy before subsequent observations whenever possible. Analyses and findings relating to the code "chalkboards" as an example of the process employed during this strand were then given. The reiteration of coding and categories was illustrated by a 47-survey questionnaire item comparison of the code "chalkboards" with interview data for consistency. This process aided the dimensional development of properties as well as the buildup of participants' profiles.

An overview of the post-observation interviews and analysis was summarized in Section 6.5. As findings during this strand were varied and similar to earlier information regarding constant comparative techniques, no new examples were given. It was pointed out that at this stage in the analysis grounded theory analysis prescribed by Strauss and Corbin (1998) did not include line by line analysis but rather comparisons between new data and existing codes and categories.

The final section (Section 6.6) of this chapter laid the foundation for the central category which led to the development of the substantive theory, "what works". Three main domains were sketched out, including teacher psychodynamics, administration & infrastructure (A&I), student variables, and teacher community, and *what works*. These three domains respectively represent the teachers' internal concerns, external concerns and the negotiation of the two. Categories were also listed for each of the three domains. These included for teacher psychodynamics: teaching beliefs, learning experiences, work ethic, attitude toward technology, efficacy, development, innovativeness, sociability, attitude toward authenticity, and personality. Included for administration are infrastructure, student variables, and teacher community: administration issues, Korean setting, resource accessibility and dependability, technology training, student variables, and teacher community. Finally, the domain of *what works* includes the following categories: teaching practices, roles & responsibilities, community sharing, use of resources, satisfaction & self-efficacy, position, bias, and time. These domains and categories are unpacked in Chapter Seven.

Chapter Seven: The "What Works" Substantive Theory Context

7.1 Introduction

This chapter presents the study's central category in the form of a substantive theory entitled "what works". As mentioned above, this theory's dynamic is based on the interplay or balance between teachers' internal factors and external concerns. Beginning in Section 7.2, an overview of the theory is presented followed by a detailed assessment of the first two of the three domains which make up the theory and context. Each of these domains is then unpacked to reveal its pertinent categories and properties. These involve quotations in support of each category and property, while the final domain which involves the resultant substantive theory derived from the interplay of the first two domains is presented later in Chapter Eight.

7.2 Overview of the Theory

Figure 7.1 shows a graphic illustration of the substantive theory "what works". At the center is a large rectangle representing the classroom labeled "the teaching pit" owing to teachers' perceptions of the negotiation and struggle that takes place within the classroom. The disc in the center represents the interplay between changes imposed externally and teachers' desire for and use of adaptations or coping strategies. Also within the teaching pit lie four main players symbolizing teacher, student, resources, and curriculum. Each of these main constituents has a set of changing roles and responsibilities as perceived by the teacher. Outside the teaching pit, two primary and two secondary influences direct the action within. These respectively relate internally to the teacher (teacher psychodynamics) and externally to the setting (administration, infrastructure and student variables, and teacher community [including teaching assistants]). As can be seen in the upper left and right sides of the illustration, the "teacher monitor" and "administration and infrastructure (A and I) monitor" indicate the metacognitive processes for

each of these primary influences on the teaching pit. The figure holding the trophy in the top center signifies the perceived degree of "teacher satisfaction" and "teacher image" as a balance between the two monitors' desires. Finally, arrows throughout represent the relationships between constituents, while the question marks stand for the deliberation on resource use.

To put the theory in motion, a teacher brings with her or him certain beliefs and experiences (teacher psychodynamics) which affect how she or he wants to teach in the classroom. However, rarely (if ever) are these desires and methods directly applicable to the classroom setting (the teaching pit) – hence the overriding need for adaptations. From the opposite perspective, the university's culture and methods (administration & infrastructure) largely underwrite the curriculum and resources while imposing changes for various purposes and at different times. The frequency and degree of adaptations and changes made are determined through metacognitive monitoring of the process by both parties concerned (teacher monitor and A&I monitor respectively). The resulting teaching methods and techniques (*what works*) are based on individual teachers' balance between their internal desires and experiences (teacher psychodynamics) and the external demands of the setting (the teaching pit and administration & infrastructure/student variables/teacher community). Further, the relationships between the students and the teacher (student role/responsibilities and teacher role/responsibility) and resources and curriculum (resources role/responsibilities and curriculum role/responsibilities) are to various degrees unique to each teacher, group of students, individual classroom and even lesson. This necessarily includes the deliberation on use of any technology in and/or out of the classroom (Park University website, Department site, email). The final consideration is the teacher's relationship with both the teaching community (teacher community) and the university's culture and methods (administration & infrastructure). The degree of alignment with both affects the satisfaction and image of the teacher. Other significant factors in this regard are the amount of teacher experience at the university and their perception of their self-efficacy. Generally speaking, new teachers out of necessity are more reliant on the university and therefore often follow more closely its culture and methods. As experience is gained, teachers often sense greater degrees of self-efficacy, resulting in greater satisfaction. However, this is not always the case, particularly when there is a larger degree of mismatch between the teacher's desires and various factors in and out of the classroom. Moreover, teachers' perceptions of the

need to manage their image both in and out of the classroom are another intervening factor for both self-efficacy and satisfaction.

To summarize, the *what works* theory is based on three main domains: the internal domain (teacher psychodynamics), the external domain (administration & infrastructure/student variables/teacher community) and the interplay between the two (*what works*). In order to consider the use of technology, it is necessary to delve more deeply into the decision making processes that teachers engage in as they determine what works for them. Decisions to use or not use any resources are, in the final analysis, not isolated decisions but necessarily involve factors from all of the above three domains. Therefore each of the two first domains is unpacked below to provide the context for the final domain detailed in Chapter Eight.

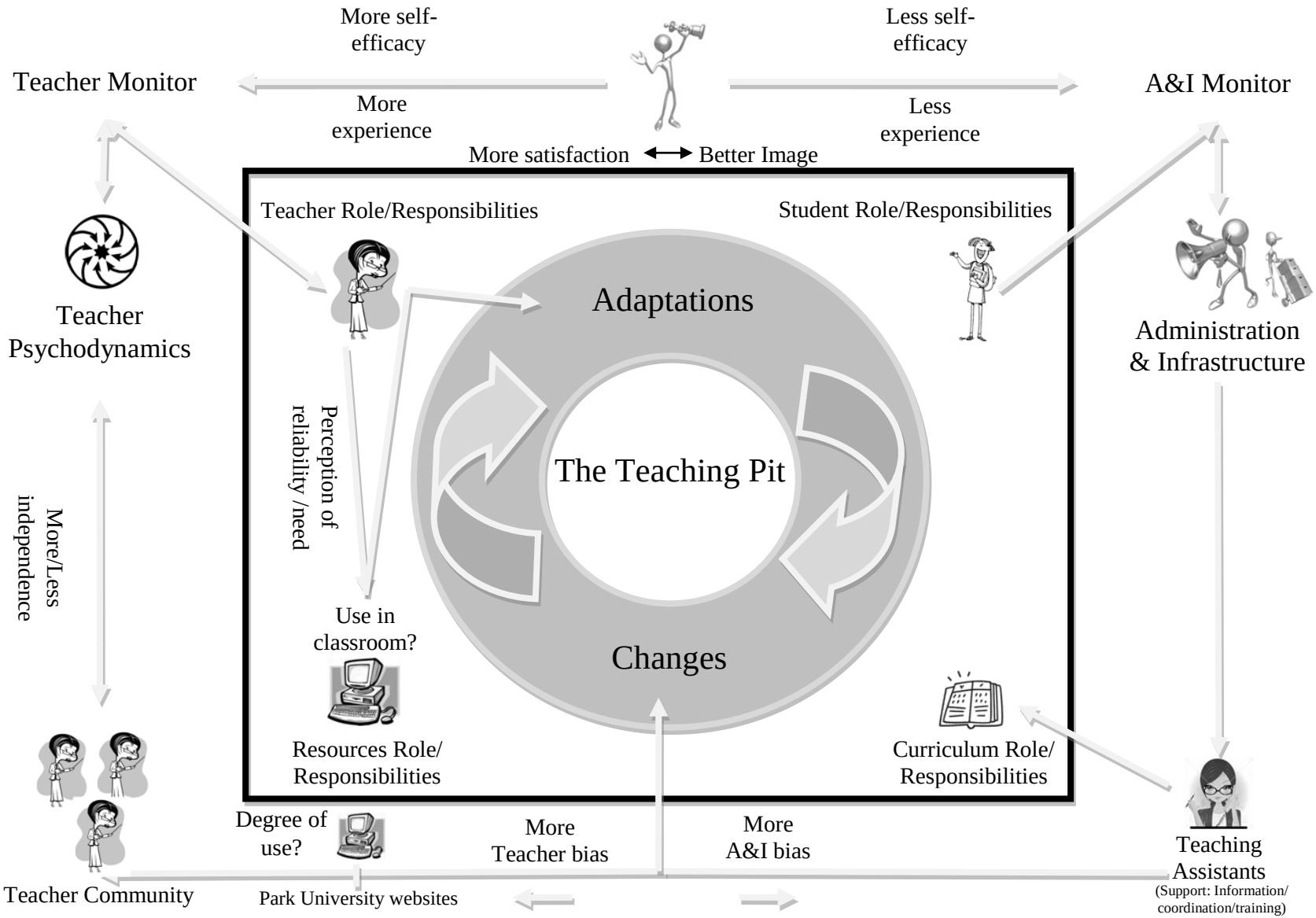


Figure 7.1. A visual representation of the substantive theory "what works".

Figure 7.2. Properties and aspects related to the 10 categories of teacher psychodynamics.

7.3 Teacher Psychodynamics

As mentioned above in Chapter Six, this domain contains 10 categories: teaching beliefs, learning experiences, work ethic, attitude toward technology, efficacy, development,

innovativeness, sociability, attitudes toward authenticity, and personal. These categories can be further broken down into their various properties and aspects (Figure 7.2), which are clarified below.

7.3.1 Teaching Beliefs

The first category in this domain involves teachers' beliefs about teaching. Teachers on the whole thought a lot about teaching in terms of their "learning methods", "goals", and "underpinnings". In their learning methods, three main aspects helped to organize teachers' concerns in this area: "materials", "activities", and "goals". Materials use in the general English program at Park University varied from a set curriculum and textbook (including the required use of the Park University website) in the compulsory freshman general English classes to complete autonomy of *materials* and methods in upper-level elective courses. Teachers in the former courses often pondered how best to adapt the prescribed materials to match their aims in the course, particularly in new classes:

> …so there's a big learning curve in terms of, you know, making up my own materials to go with the books, and um, you know, prepping a lot of stuff, and just familiarizing myself with the contents of the book, so…you know, um, I'm probably doing a lot more prep this term than I will in subsequent terms if I teach these books again. (Jerry, SSI#1)

A lot of effort was put into this area including decisions on the necessity for, amount of, adaptation to and balance of supplements to the required materials. The second important aspect involved the *Activities* which teachers used to make their lessons come alive in hopes of maximizing student involvement and interaction. Teachers employed various activities for different purposes and likewise considered the effects of these activities on students' learning strategies:

> …for example, what we're doing right now – at the first half of the semester I provide them with different kinds of comprehension questions – the second half, I ask them to do it themselves. (Tina, SSI#6)

The final aspect related to teachers' learning methods was consideration of the *roles* that the teacher and students took as they learned. Teachers often reflected not only on the roles that they and students assumed during learning, but also explicitly pondered the overall relationship that they wished to maintain with students both in and out of the classroom:

> Soon they realize that, again, I'm on their side; I'm trying to help – I'm not talking down, I'm just one of the students and I'm trying to make them see things and improve as best they can. (Scott, SSI#9)

Further, teachers' beliefs were guided by their "short-term goals" and "long-term goals". This aspect perhaps more than others, was one in which clear distinctions were difficult to draw. All teachers' goals were intrinsically a part of their methods, although at times, they also chose to openly cite them openly as motivators for their classroom decisions:

> It's like, what are my goals and then what kind of approach am I going to use? Sometimes you have to use a lecture approach, sometimes you have to use example[s] – but I think the best way to use examples is with vocabulary…So whatever fits the goal, then you should use that method. (Stephen, SSI#8)

Or at times they cited them as motivators for their more long-term or comprehensive goals:

> Actually, for me because my goal is to have the students get confidence, and for them to experience and practice English, whatever materials that are used doesn't matter. But it's how you go about it inside the class that's important. (Val, SSI#3)

Moreover, teachers often relied on their amalgamated training and experience which formed their *underpinnings*, in terms both of teaching beliefs ("epistemology") and actions ("methods"). They often thought about their approach to the classroom and how they could practically adapt theory into their teaching:

> I mean everybody has…You read about different theories and things like that and they all sound good, but aren't always practical. So, I think you have to balance the theories with the practical activities. (Ian, SSI#12)

Or they considered the theoretical basis for methodological decisions in the classroom:

> …you've heard this whole argument – should we ever use any, you know, the target language…Should we ever use any of the first language in the class, and um, that whole debate which I'm not going to go into. But somebody…people have pointed out occasionally, ah, it's worth two seconds to move on than to spend five minutes – all kinds of gyrations to explain something – miming and all that. (Rich, SSI#5)

On the whole, this category occupied teachers' thinking in a multitude of ways, confirming that teachers were highly concerned with both the theory and the method of their classroom teaching. Although this seems self-evident, other studies have likewise confirmed that "much of what teachers do in the classroom is the product of , or is accompanied by, some form of thinking (Calderhead, 1987; Clark & Peterson, 1986; Freeman, 2002)" (Mullock, 2006, p. 48).

7.3.2 Learning Experiences

Teachers' learning experiences frequently formed the basis for the pedagogical decisions that they made. This category could be viewed with respect to its "professional" and "personal" properties. *Professional* learning experiences could be further divided into three aspects: "university", "technical training", and "language learning". Teachers often quoted their own learning experiences while they had been *university* students as the basis for the methods they used in their own teaching:

> I mean, I try to keep the class as upbeat and fun as possible so that it catches their interest. So I tell a lot of jokes and stories – but they're related to our readings and using the vocabulary – so I think they tend to remember those things more. That's what I remember from my school, the funny stories that the teacher used to tell about the subject. (Sarah, SSI#7)

Teachers likewise often looked to the *technical training* that they had received weeks or even years earlier to help make decisions about how they conducted their classroom activities:

> And that's also one thing I learned from the training I had when I was working at * is the fact that people have different learning styles. So when I'm in class I try to use different learning styles. (Stephen, SSI#8)

More directly, teachers frequently recalled their own *language learning* experiences when asked about their current teaching methods:

> Giving us tasks to do and do these tasks completely in Japanese and the lessons were all in Japanese – graded obviously – but I thought that was a really interesting approach. (Craig, SSI#2)

In terms of informal or *personal* learning, experiences can be further divided into "firsthand" and "vicarious" knowledge. Like perhaps most people, teachers' lives provided a wealth of informative moments that found their way into their teaching or provided a basis for how to manage their classrooms:

> And I found because of that, I kept always looking…on the bright side. You know, I kept always looking for the best in a situation….I thought that, you know, being positive about the experience would get me, get me quite far. (Craig, SSI#2)

Likewise, even indirect or *vicarious* experiences both at work and at home could influence teachers' behaviors and decisions in subtle ways:

> I left and then that happened right after me, but I kind of knew what was going on…so…I think in the English department they keep making changes, so it's like nothing's stable! Even my job, I think! (Amy, SSI#10)

7.3.3 Work Ethic

Teachers' work ethic included three main properties: the "amount" of work teachers were willing to devote, the "boundaries" between their professional and personal lives, and their beliefs and experiences related to "efficiency and effectiveness". The *amount* of time that teachers put into their teaching for preparation, adaptation and marking varied not only from teacher to teacher, but also from course to course, section to section and lesson to lesson. Most teachers, regardless of the strength of their work ethic, spent an equal or greater amount of time working outside the classroom than during lessons. Those with particularly strong work ethics could sometimes devote between five to ten hours beyond this amount. A strong mitigating factor in this regard was the number of personal obligations for teachers such as matters related to family life,

personal study, additional work responsibilities, and leisure activities. The following two quotations illustrated the diversity of teachers' work ethics:

> And um I spend a lot of time preparing actually. I probably spend another 12 hours a week just in preparation. And then on top of that there's marking and so on, so, you know, it's a full-time job. (Russ, SSI#4)

> …all I was doing was writing and enjoying….I mean you had to go to school for these hours and you did it, but then get on with the rest of your life. (Scott, SSI#9)

Another important aspect in this regard was the individual teacher's personal work ethic which involved the amount of time and energy that teachers typically applied to anything that they did in their lives. Logistically, it is important to remember that some teachers preferred to work more quickly, while others favored a more measured pace:

> So I grabbed some paper and I wrote two and a half chapters and I thought, I can't go back to this; I can't write like this any more. It doesn't work; my mind is too fast and the writing is too slow. (Rich, SSI#5)

> No…actually, I also like to figure things out on my own sometimes – it takes longer I know, but ..... (Tina, SSI#6)

As an expected consequence of spending large amounts of time working out of the classroom, teachers often had to make decisions about the *boundaries* between their working and personal lives. Although the majority of these boundaries were better thought of as an adaptable process than as a fixed set of imperatives, for each teacher certain *beliefs* were hard and fast:

> But I keep a separate email account for work because I don't want problems popping up at all hours of the day – when I'm ready to deal with work, I'm ready to deal with work. (Sarah, SSI#7)

These beliefs were usually formed through years of *experiences* which continued to modify and revise how teachers separated the boundaries of their increasingly technological lives:

> Suddenly, or yesterday I check and I had all these emails from ex-students who are not here; some of them are not even in Korea. I like students coming to the office and speaking with me, and I like students who….I'll write like two paragraphs for students and then there's a dialog

> going on there. So, whenever I have my teacher evaluations, those are always on there….I don't know if they read them, but this is also teaching… (Rich, SSI#5)

As stated above, teachers recognized the extra work and shifting of boundaries that technological advances such as email had produced and strove to have their extra efforts acknowledged by the administration.

Moreover, owing to explicit and implicit demands on their time, teachers were increasingly taking into consideration the *efficiency and effectiveness* of their methods both in and out of the classroom in order to maximize their efforts. This final aspect of *Work Ethic* was closely tied to perceptions about the use of technology:

> …rather than write it on the blackboard, it's much more efficient – both for me and for class time – to put it on a PowerPoint slide. (Martin, SSI#11)

Most teachers expressed certain *beliefs* about this topic and/or related particular *experiences* that helped to form their beliefs in this area. Inherent to these thoughts and desires was a need for consistency and in particular a continued engagement in the process toward more efficiency and effectiveness:

> Now this time, the way I've done it is after each class, the first thing I will do when I get to my office is post everything that I've used in class. Next semester, what I want to try to do is post it before so the students can actually preview before the class. (Stephen, SSI#8)

Further, teachers expressed the relative ease with which they were able to conduct classes with materials prepared in advance using technology. This was an important characteristic which directly addressed the redundancy of repeated lessons:

> …ah, for example, the PowerPoint stuff that I've been doing is for writing…ah, to give them instructions about like the process of writing – the steps of writing an essay. And um…this is stuff that I can use in both levels. So I can use this stuff in all my classes. So I do a presentation once…and then I get to use it four times…which…in the long run, makes my life easier. (Jerry, SSI#1)

On the other hand, decisions about technology use involved a number of negative elements which could adversely affect the teachers' attitudes toward technology and their deliberations on future use.

7.3.4 Attitude toward Technology

Teachers in the study expressed a plethora of ideas about technology which underpinned their overall attitude toward their "professional" and "personal" use of technology. This category overlapped nearly every other category in teacher psychodynamics and therefore could best be thought of as encompassing only the "explicit" thoughts of teachers about technology as they were expressed during the study. Professionally, teachers held beliefs about the use of technology both inside the classroom ("intra-classroom") and outside the classroom ("extra-classroom"). Numerous factors affected the range and degree of technology use in the classroom from physical space considerations and resource availability to the personal experiences and expectations of the teachers:

> Well, at least then you're facing them, right? Like, if you're writing on the board, you're like this (sideways), but with this, this way (keyboard in front)…Because the thing was right there (in front), I could be looking at them and make the changes and I'm still facing them. So, it's not as bad I think. (Sophie, SSI#13)

Outside the classroom, teachers maintained attitudes about their use of technological tools to accomplish various goals from communication with students to additional teaching and administration:

> I think they spend a lot of time in cyberspace…I think – on the computer. So, me, I like things, like if they want to contact me, I say, "Send me an email".…but they prefer instant messages. (Amy, SSI#10)

Likewise, teachers' *personal* use of technology involved "formal" considerations as well as "informal". As stated above, most teachers perceived technology as a way of lessening their

workload through more efficiency and effectiveness, and therefore the majority employed it to reduce the burden of administrative tasks:

> Because, as I said, you can post….especially, it's reduced my workload because I can post activities on the Park University website, I don't have to make like a million copies and that sort of thing. (Ian, SSI#12)

Informally, all teachers unanimously agreed that they like to use technology in their personal lives for everything from relieving stress and novel writing to downloading movies and website design:

> Yeah, Internet; email; downloading things; photographs….Games at home – I have road rage when I get home – driving in Seoul – I need a half hour of blowing something up in order to calm down. (Sarah, SSI#7)

The ubiquity of technology in the lives of all the teachers was one of the strongest points of concurrence and served to underscore the enigma of its patchy use for teaching purposes.

7.3.5 Efficacy

This category involved the thoughts that teachers expressed about their personal "ability" and that of teachers in general to achieve specific goals. The former concept related to Bandura's (1986) "self-efficacy", while the latter was similar to "perceived collective teacher efficacy" (Bandura, 1997; Goddard & Goddard, 2001; Goddard, Hoy & Woolfolk Hoy, 2004). However, it was more closely aligned with individual teacher self-efficacy in the abstract (i.e., the teacher's perceptions of the level of *any individual* teacher's ability to achieve specific goals at Park University or more generally at any Korean university). Hence, the broader term "efficacy" was adopted for this category owing to its application to both of the above categories.

Teachers' *efficacy* could be organized into "short-term" and "long-term" aspects of "professional" and "personal" concerns. Although this was a somewhat arbitrary distinction, it did serve to manage differences expressed about more local or temporary beliefs from those of a more permanent or global nature. In terms of *professional short-term* efficacy beliefs, teachers

described feeling inhibited in their use of technology by various factors such as the number of students or their own lack of training:

> Although I can't see just with the computer system what could.....be done with a class of 35 with one computer and a screen. (Sophie, SSI#13)

Others showed a willingness to learn new ideas even with virtually the same lack of experience (though having models may have been the difference in this instance):

> I thought that sounded really fantastic….um.…yeah, so in the future, that's something that I might be interested in doing…I don't know if we have such capability on the Park University, like site…Do you know if we can do that? (Jerry, SSI#1)

Recurring issues that were more global in nature made up the *long-term* dimension of professional efficacy beliefs and included seemingly unchangeable hindrances such as student predisposition and curriculum choices:

> Well, whatever they come up from high school, I can't do anything about it.…I would prefer that we could intensify the reading….I would prefer it to be a little higher, but ah, I think for now, because of the students' level and because of the need to focus on the practical aspect rather than the academic aspect of English, um….we really do not have a choice. (Val, SSI#3)

Or more specifically, issues suggested that teachers were by nature less effective in this field as students needed to do most of their learning on their own:

> I think that it's a fact that students – especially in this setting – most of their language learning has to occur in their own time…outside the classroom. (Russ, SSI#4)

A second concern for teachers involved their *personal* efficacy beliefs which could likewise be grouped into "short-term" and "long-term" aspects. The most commonly cited *short-term* concern for teachers involved the realization that too many issues inhibited the accomplishment of day-to-day tasks:

> Yeah, and I read newspapers, email of course, and then teaching. I'm on the computer too much really. Yeah, I'm trying to cut back right now. (Scott, SSI#9)

This same issue merged into a more *long-term* concern even for teachers who realized that they had a tendency to take on too many tasks:

> I've been pressed for time since…damn…ever since I started my masters I've been pressed for time. Um, because when I finished the masters, I had a new job here and I've taken some time to get a handle on this….And I've had a family…. (Russ, SSI#4)

However, as many teachers noted, teaching, by nature, had a tendency to crowd schedules and blur distinctions between one's professional and personal life (discussed above in section 7.3.3).

7.3.6 Development

Teachers, to varying degrees, strove to advance their teaching ("professional development") and personal lives ("personal development"). With regard to *professional development*, when asked how they had begun teaching, many teachers said that their careers had started unintentionally or indirectly:

> Ah, actually, I never thought that I would be a teacher; I never wanted to be a teacher, but somehow I'm teaching and I've been doing it for a long time. (Val, SS#3)

> Yeah, I can't say like I've always wanted to become a teacher; it's not like that at all. Ah, it might surprise you to know that when I entered university I started in engineering. (Stephen, SS#8)

However, through inspiration or further learning "experiences", they came to enjoy them and sought to formalize their chosen profession:

> And then, I taught at an institute – a couple of different institutes…I liked teaching; I like teaching ESL.....a lot more than engineering – and so I kind of wanted to make it a career, so I went back to the states and got my masters in TESOL… (Ian, SSI#12)

> I mean, I have a bachelor of commerce, and a JD law degree; a [Certification in English Language Teaching to Adults] CELTA, a [Certification in English Language Teaching to Adults] DELTA, and a MA-TESOL – Education is necessary to be competent (Sophie, SSI#13)

As teachers continued to advance their careers, they likewise modified their "beliefs" about what kind of training they required and who should provide it:

> Yeah, I'm self-trained; I figure out what I need and I figure out how to do it, so I have big gaps because ah…I never had to do that – I don't know how to do it! So I'm self-trained; I play with it and figure out what happens. (Sarah, SSI#7)

Significantly, teachers often lamented their lack of training and yet when they were asked on the survey questionnaire if the department should provide regular weekly or monthly workshops (which include computer training), only about one-third (35.7%) of the full-time and one-fifth (20%) of the part-time teachers agreed. As expressed in the following quotation, the issue was complex and involved other variables such as the quality or usefulness of the training provided:

> Right, unless it's something short – like a 15 or 30…maximum 30-minute presentation – that I can bear with it, if it's a little slow. But if it's beyond that, it's just like, okay, I can use my time in a better way. (Stephen, SSI#8)

Certainly, *experiences* played an important role in forming *beliefs* about the overall need for and level of professional development. At Park University, where there is a high degree of professionalism, teachers were often influenced by their peers and consequently sought out knowledge and training that they lacked from various sources:

> So…um, I thought, hey, and I've heard teachers who use them, so I thought it was a nice thing to have. (Rich, SSI #5)

However, often the desire for training was not realized simply because it was a lower priority for teachers who (as mentioned above) felt pressed for time:

> I wish I had that knowledge, but I don't wish that strongly enough to be able to sacrifice something else in my life to make time to do that. (Russ, SSI#4)

In terms of *personal development*, teachers similarly held "beliefs" which were formed through "experiences". Teachers had *beliefs* about where they were in their lives and where they wanted to be in the future. These personal goals were as varied as there were teachers, but many of these had direct implications for many areas of teachers' work lives and careers:

> I don't see myself teaching these classes in the future at all….I love teaching but.…writing is my focus, again, my sole focus…so, less distractions; being in a writing community again; Being around other writers – I just want to get better. (Scott, SSI#9)

Moreover, particular *experiences* could color teachers' characters and the approaches that they had toward developing their lives and many aspects of their teaching:

> Ah, when I went to my graduate school, the education department was – most of it – it was a mess! Well, yeah; it's the reality…There's no use beating your head against the wall. (Rich, SSI#5)

Another associated feature of development is that of willingness or attitude toward learning, which is explored further below in Section 8.7.

7.3.7 Innovativeness

Rogers (2003) defined "Innovativeness" as "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than the other members of a system" (p. 22). For teachers in the general English department at Park University, this could be described as the relative degree of their willingness to make *Adaptations* as compared to other teachers in the department. To understand this category, it was necessary to look at teachers' *attitude toward change* and their "adopter traits" as described by Rogers (2003). Teachers' *attitude toward change* could further be divided into "beliefs" and "experiences", although often the former was informed and mediated by the latter. The *beliefs* that teachers held about change largely determined their inclination to try new techniques in their teaching. Many teachers in the study expressed a general positive association or openness with trying new things:

> This is the first semester that I've started using that…and I'm quite pleased with that. (Russ, SSI#4)

However, most teachers' attitudes toward change were tempered by the perceived effects of the change, which in turn were governed by who was making the change and for what reason:

> And actually I think student comments are very important….Sometimes we do get very productive comments which can help improve our classes, so those are the motivation to change, or that would force me to change what I have been doing. (Val, SSI#3)
>
> …so they make changes whether they're needed or not. (Rich, SSI#5)

Moreover, personal *experiences* affected and were affected by teachers' attitudes toward change. The inclination to make changes could be hindered or encouraged by both the self-efficacy of the teacher and the demands of the situation:

> I had to rush in there to make some photocopies…ah….I needed some help with one thing on the copy machine and the girl didn't…quite seem to know what she was doing and I just kind of gave up on it. (Jerry, SSI#1)

Another way to look at innovativeness was through the examination of *adopter traits*. As outlined in Section 4.6 above, these traits could be organized under three main headings: "socioeconomic status"; "personality variables"; and , "communication behavior" (Rogers, 2003, pp. 288-292). Each of these main headings could be further divided into its component "Generalizations" (Rogers, 2003, pp. 288-292). These generalizations are listed in Table 7.1 along with their applicability to the current study. Of the six generalizations related to Socioeconomic Status, only one was unconditionally supported in the current study – "Generalization 7-6: Earlier adopters have a greater degree of upward social mobility than do later adopters". Of the remaining five, two were not applicable to the current study, two were somewhat supported, and one– "Generalization 7-3: Earlier adopters have more years of formal education than do later adopters" – was rejected outright. Teachers interviewed at Park University (n=13) were all holders of higher education degrees (i.e., master's degree holders or higher), with the three highest fitting into the latter categories of innovativeness. More specifically (as given above in Section 4.5), Rogers (2003) designates five adopter categories which represent ideal types, ranging from the most innovative to the least: innovators, early adopters, early majority, late majority, and laggards. Two of the three highest degree holders in this study (doctoral degrees) were found to fit into the late majority category, while the last could be considered a laggard, thus disproving this generalization for the current study.

Of the second heading, *personality variables*, seven of the generalizations were supported, while three were not applicable to the current study. Like Rogers' conclusions in this area, innovative teachers in the study were found to be more rational, less fatalistic and less dogmatic, and tended to confront and embrace uncertainty and change more readily. The final heading in the group, *communication behavior* offered a somewhat different story. Three of the nine generalizations were not applicable, while two – Generalization 7-19 and 7-23 – were indistinguishable from "Generalization 7-18: Earlier adopters have more social participation than do later adopters", which itself was only partially supported. In the current study, it was impossible to differentiate between "social participation" (Generalization 7-18), "highly interconnected through interpersonal channels" (Generalization 7-19), and "exposure to interpersonal communication" (Generalization 7-23); therefore the latter two were subsumed under the former, more widely ranging generalization of social participation. Moreover, the generalization that the more social a teacher is, the more innovative she or he tends to be did by and large hold true; however, there were a number of exceptions on both ends of the scale which made this generalization only moderately valid. For instance, three of the teachers that could be considered in the late majority in innovativeness were some of the most sociable, while the most innovative teacher would not, relatively speaking, be considered highly sociable. While the latter, highly innovative teacher could perhaps be explained by Rogers' (2003) statement: "While an innovator may not be respected by other members of a local system....." (p. 283), the former three in the late majority could not.

Table 7.1
Application of Rogers' (2003, pp. 287-292) "Characteristics of Adopter Categories" to the Current Study

Socioeconomic Status	**Conclusion for Current Study**
Generalization 7-2: Earlier adopters are no different from later adopters in age	Somewhat rejected
Generalization 7-3: Earlier adopters have more years of formal education than do later adopters	Rejected
Generalization 7-4: Earlier adopters are more likely to be literate than are later adopters	Not applicable
Generalization 7-5: Earlier adopters have higher social status than do	Somewhat supported

later adopters	
Generalization 7-6: Earlier adopters have a greater degree of upward social mobility than do later adopters	Supported
Generalization 7-7: Earlier adopters have larger-sized units (farms, schools, companies, and so on) than do later adopters	Not applicable
Personality Variables	
Generalization 7-8: Earlier adopters have greater empathy than do later adopters	Not applicable
Generalization 7-9: Earlier adopters may be less dogmatic than are later adopters	Supported
Generalization 7-10: Earlier adopters have a greater ability to deal with abstractions than do later adopters	Supported
Generalization 7-11: Earlier adopters have greater rationality than do later adopters	Supported
Generalization 7-12: Earlier adopters have more intelligence than do later adopters	Not applicable
Generalization 7-13: Earlier adopters have a more favorable attitude toward change than do later adopters	Supported
Generalization 7-14: Earlier adopters are better able to cope with uncertainty and risk than are later adopters	Supported
Generalization 7-15: Earlier adopters have a more favorable attitude toward science than do later adopters	Not applicable
Generalization 7-16: Earlier adopters are less fatalistic than are later adopters	Supported
Generalization 7-17: Earlier adopters have higher aspirations (for formal education, higher status, occupations, and so on) than do later adopters	Supported
Communication Behavior	
Generalization 7-18: Earlier adopters have more social participation than do later adopters	Somewhat supported
Generalization 7-19: Earlier adopters are more highly interconnected through interpersonal networks in their social system than are later adopters	Linked to 7-18
Generalization 7-20: Earlier adopters are more cosmopolite than are later adopters	Not applicable
Generalization 7-21: Earlier adopters have more contact with change agents than do later adopters	Not applicable

Generalization 7-22: Earlier adopters have greater exposure to mass media communication channels than do later adopters	Not applicable
Generalization 7-23: Earlier adopters have greater exposure to inter-personal communication channels than do later adopters	Linked to 7-18
Generalization 7-24: Earlier adopters seek information about innovations more actively than do later adopters	Supported
Generalization 7-25: Earlier adopters have greater knowledge of innovations than do later adopters	Somewhat supported
Generalization 7-26: Earlier adopters have a higher degree of opinion leadership than do later adopters	Rejected

Further, two other generalizations in this category related to seeking and possessing knowledge of innovations (Generalizations 7-24 and 7-25) were supported with the proviso that the element of time was a mitigating factor in both. On the whole, innovative teachers in the study tended to be timelier in their desire for and knowledge of innovations, however, owing to strong social channels and the ease of access to information on the Internet, this difference was reliant on holding time relatively constant – innovators did find and retain information more quickly than others who would be considered more lagging, but only marginally so when considering the amount of time that usually passes in the interval between the two. The final generalization in this heading, "Generalization 7-26: Earlier adopters have a higher degree of opinion leadership than do later adopters", was also rejected in the current study. Owing to a lateral leadership structure among the full-time teachers in which various responsibilities are shared on a rotational basis, there was little officially recognized leadership. However, those of higher seniority did tend to have more opinion leadership among the faculty, and among these leaders more than half could be said to fit into the less-innovative categories of late majority or laggard. Rogers (2003) notes that: "Although innovativeness and opinion leadership are positively related, the degree to which these two variables are related depends in part on the norms of the social system" (p. 292). If this is true, then the social system at Park University may be said to be less favorable to change or innovations.

7.3.8 Sociability

This category represented teachers' relations not only with other teachers but also with any others they mentioned during interviews who had influence upon their lives and teaching. Two properties of sociability, "interpersonal", and "networking", embodied casual and purposeful interactions with friends, family, and peers. Each of these two properties could be further considered through its related "beliefs" and "experiences". *Interpersonal beliefs* involved thoughts or ideas about interacting with others such as what course was to be taken when confronted with issues:

> But I've been told – see, this is the thing – you know, I've got to talk to people about these sorts of things. (Russ, SSI#4)

Many interpersonal *experiences* involved learning experiences which could have a direct effect upon teachers' methods or techniques both in and out of the classroom:

> Um…I know my dad uses it a lot for like personal management…like his calendar and keeping addresses and stuff. Um…I'm thinking about…perhaps…uh…uh…using Excel to calculate students' grades….(Jerry, SSI#1)

Other experiences may have had more profound effects which were less directly observable in teachers' behaviors and strategies:

> Um…and, I was, my dad is really into that kind of stuff and he put me onto all of that type of literature. A lot of that stuff you know, you can actually [download it off the Internet]. (Craig, SSI#2)

By contrast, some experiences that seemed to have a very direct bearing on teachers' methods were not attempted for various reasons:

> Yeah, and all the blogging that goes on in the creative writing, I mean the poetry world, it's really interesting now. I mean I've learned more through that…
>
> Researcher: Have you thought of therefore using it in your classes here?

> We really could, yeah, I have thought about it. Again, I'm not quite sure how I would… (Scott, SSI#9)

In the area of more purposeful socializing or *networking*, it was also useful to consider "beliefs" and "experiences". Teachers made frequent attempts to interconnect with other teachers and students for purposes that ranged from generally establishing rapport to sharing teaching techniques and modifying approaches through feedback. They often conveyed such *beliefs* and desires explicitly:

> But I think it's good to know what other teachers are doing so if you have good materials you're sharing. (Amy, SSI#10)

Specific *experiences* also molded and reflected teachers' beliefs about their teaching community:

> Yeah, I think one of the issues of this job is that people come and go on different schedules and don't see each other that much. Whereas over at *University, we were always all there together at the same times of day….Everyone was always there, talking and you know…sharing their ideas. (Jerry, SSI#1)

Furthermore, direct comparisons between the full-time and part-time faculty revealed a different dynamic in this regard:

> Actually, the part-timers, because they have to share the desks and they're sitting in front of each other, they're well coordinated. And so, when we were doing the new books, they divided the readings and they made things and they shared. (Amy, SSI#10)

Establishing and maintaining a strong teaching community had many benefits such as the sharing of ideas and materials creation which also affected the personal development of teachers. In a widely-ranging and perhaps more important manner, solid communities could promote a healthy, interconnected sense of purpose that enlivened all of its members. This dimension is discussed further in Section 8.7 below.

7.3.9 Attitude toward Authenticity

Authenticity has a number of meanings for education and research. In second language teaching, it is sometimes referred to as "the degree to which language teaching materials have the qualities of natural speech or writing" or more expressly as "materials that were not originally developed for pedagogical purposes" (Richards & Schmidt, 2002, p. 42). In a more practical sense, authenticity can be linked to constructivist principles and involve the use of teaching methods and materials interrelated with "the actual work of a society engaged in constructing, using, and improving knowledge" (Scardamalia & Breiter, 2000, p. 316). In the current study, *attitude toward authenticity* involved teachers' perceptions of the need to have lessons match real-world situations and experiences. These perceptions could be divided into the perceived "role of education" and "role of participants". Under the *role of education*, "materials" and "methods" encompassed (respectively) thoughts about the curriculum and its implementation:

> And so they sounded really, really authentic because these were good voice actors working with a loose script that they then reproduced. So…I really enjoyed teaching that kind of stuff and as far as speaking and listening is concerned I feel very strongly that that's the type of language that they should be exposed to. (Jerry, SSI#1)

As is represented above, in the *role of education*, two main aspects of authenticity in teaching predominated: the importance of teaching being "alive" and of its being related "to their (students') lives".

The second area of the *Role of Participants* included views on the roles of the "teacher" and "students". *Teachers* expressed student-centered beliefs about the need to be more of the oft-quoted 'guide on the side' rather than a 'sage on the stage', but often the experience of years of classroom teaching revealed hurdles or setbacks that made this approach untenable or at the least, difficult to implement consistently:

> So, I'm much more, much more of an authority figure for the lower-level classes than I, you know.....but it is somewhat case by case. (Rich, SSI#5)

> The students aren't focused on the teacher and the teacher's lecture; they concentrate on speaking to other students, they have a lot more opportunities and then the teacher can walk around as a facilitator – I try to do that as much as possible. (Ian, SSI#12)

All the more, when asked about their beliefs on the role that *students* should take in the classroom, the majority of teachers began by discussing the need for students to take more charge of their own learning before quickly devolving into the limitations or shortcomings of the students and the educational situation in Korea:

> …it's student-centered as much as possible as opposed to just lecturing at them. Ah…actually having to do something and engaged in what they are doing, and hopefully working with each other just as an example….Um…some of my other teaching philosophies, unfortunately, are things that I'm not totally free to pursue here at Park University. (Jerry, SSI#1)

> They're going to put their focus on their major classes and if they don't get our class done – oh, well. (Sarah, SSI#7)

This and other concerns related to students, the administration and the educational situation in Korea in general are explored in more detail below in Sections 7.4 and 8.1.

7.3.10 Personal

This final category was one of the most varied owing to the diversity of teachers and the considerable role that personality played in most aspects of what they believed and did. It is important to bear in mind that this category more than others relied on self-reporting and therefore was highly susceptible to biases. The first property, personal attributes, could be subdivided into aspects which were within the teachers' direct control ("beliefs/interests") and those which were more essentially immovable or externally-dependent ("manner/experiences"). Teachers' *beliefs/interests* represented personality traits and attitudes recognized by the teachers themselves:

> I thought that was, subconsciously I guess, I thought that, you know, being positive about the experience would get me, get me quite far. (Craig, SSI#2)

> I like to try everything on my own – to follow my own way of thinking. (Val, SSI#3)
>
> Yeah, I'm a bit of a pessimist, but…a bit of a skeptic, a bit of a cynic, but… (Rich, SSI#5)
>
> I'm a very, I think a very sensitive person, that I can't let things go quite easily. (Tina, SSI#6)
>
> I just want to learn how to do this because I am very impatient in getting things done! (Sarah, SSI#7)
>
> I like the….Well, it's not that I like the power, control as in power, but I like to be in control. When I'm not in control I feel a little bit insecure. (Stephen, SSI#8)
>
> I guess at times I'm easy to take advantage of – maybe I just don't care, you know? (Scott, SSI#9)
>
> The main thing…even though I have a degree in electrical engineering, I'm not the most technical guy in the world. (Ian, SSI#12)
>
> I don't know; I think I'm just technologically inept or something. (Sophie, SSI#13)

However, *beliefs/interests* also included ideas about likes and dislikes as well as interests both at home and at school:

> Yeah, news reels; little news clips from Channel Seven. They're usually little rubbishy, you know, sensationalist news, but it helps me to keep in touch. Ah…we have, we have a digital camera now so, um, we upload photos and little movies. And we spend a bit of time watching those sometimes… (Russ, SSI#4)
>
> I like drawing. I mean, I was an Art student so, and it's a little bit of showmanship on my part. So, and I like off the fly ideas that come to me in the middle of teaching sometimes. Um, that just, you know, it enlivens me and suddenly I go with it. I like it when that happens. (Rich, SSI#5)

The second area, *manner/experiences*, amalgamated aspects of personal manner with experiences which had molded teachers' behaviors in various ways, particularly in the classroom:

> I also can't teach three classes in a row because my blood sugar gets so low that I don't make any sense to the students after the second one! (Sarah, SSI#7)

> I don't like to write any more on the chalk…on the board any more.…It hurts! I mean I get tired. (Amy, SSI#10)

Although teachers were not specifically asked about their personalities, it was clear from the array of responses in this category that they took into account many personal factors when they made decisions in the classroom. The relative importance of each of these is discussed below in Section 8.8.

7.3.11 Summary of Teacher Psychodynamics

The ten categories expounded above provided an overview of the internal beliefs and concerns that teachers brought with them when approaching their work. Limiting all that teachers think and feel about themselves and their teaching to only ten categories runs the risk of being an oversimplification. Nevertheless, the classification presented was an equitable depiction of the ideas and mind-set of the teachers at the time of the study and therefore could be seen as a reasonable sketch of the internal concerns of teachers. In the next section, the external considerations that teachers faced are unpacked including matters related to the administration of the Park University English Department, infrastructure, students and structure of the teaching community.

7.4 Administration, Infrastructure, Student Variables, and Teacher Community

This domain contained six categories which spanned the external concerns of teachers in the general English department at Park University. As shown in Figure 7.3, they included: administrative issues, Korean setting, resource availability, technology training, student variables, and teacher community. It is once more important to remember that this domain represented the observations and issues that teachers expressed during the study and therefore should not be thought in any way to be exhaustive. Each of these categories is explored below.

Figure 7.3. Aspects related to the six categories of the administration, infrastructure, student variables, and teacher community domain.

7.4.1 Administrative Issues

This first category had three main properties: "organization", "curriculum", and "working conditions". In terms of *organization*, one main positive aspect ("professionalism") and one main negative aspect ("turnover") were most frequently discussed. As more than half of the full-time instructors (57.1%) had in excess of 10 years of teaching experience in various teaching settings and more than three-quarters (78.5%) had six years or more at the time of the study, they made frequent comparisons between Park University and their previous engagements. On the whole, these comparisons were highly favorable in a number of areas related to the high *professionalism* in evidence at Park University:

> And they give the staff more credit for being responsible professionals. Whereas we were treated more like children – I felt we were treated like children at * University. (Russ, SSI#4)

Further, teaching assistants (who performed mostly administrative duties and tasks) were also highly regarded:

> No major troubles; no, the TA's are pretty good, pretty professional. I mean, every once in awhile they make mistakes or do something that's pretty annoying but for the most part, they're very helpful. And I can't really think of anything that I've needed that they haven't been able to provide. (Ian, SSI#12)

However, a crucial related element with far-reaching implications was that of *turnover* owing to the short-term assignments of both teaching assistants and the program directorship. On this issue, teachers almost unanimously showed concern about the negative effects of changing the director and teaching assistants every two years:

> But I think two years ago, everybody changed at once, and all the TAs; they didn't know what they were supposed to be doing. They had no knowledge, and because nobody could teach them, and tell them ah…all the duties they were supposed to be doing… (Val, SSI#3)

> Also I think the director, you know it's every two years, we're going to have a new director coming in, so also that's a difficult thing. They don't know the program well. (Amy, SSI#10)

In particular, the two-year stint for directors seemed to bring with it a set of ideas or expectations for new directors to establish themselves through implementing new policies and/or practices which could have perceived adverse long-term effects on the program:

> …administrators get credit for introducing new programs, ah…and not, you know – I don't think they seem to get credit for keeping things going. (Russ, SSI#4)

> I've been told this and I've seen it happen – they come in, "We're going to do this, this, this" and then they leave before the falling out or the thing falls to pieces, and so we as the teachers see this. (Rich, SSI#5)

However, teachers recognized this predicament and made suggestions on how to improve the situation:

> I think that's the biggest problem that we have….So, like, a permanent staff, an administrative staff to take care of those administrative and other things…(Val, SSI#3)

> If there were a coordinator, the director…because we're going to get a new director next semester I think….They can come in and then say, "How do things work?" (Rich, SSI#5)

The second property of administrative issues involved *curriculum* and had two main aspects: "structure and materials" and "testing". The *structure and materials* employed for the required lower-level classes were almost always controversial owing to the fact that all teachers in the program had to share the same curriculum, syllabuses, textbooks, readings and testing procedures. Results from the survey questionnaire showed that 64.3% of the full-time teachers either disagreed or strongly disagreed when asked if the curriculum at Park University was consistent with their teaching beliefs. Many (57.1%) also indicated that they did not prefer reading-based programs in general, while a majority (64.3%) did not feel that the textbooks were effective and matched the needs of the students. These sentiments were also expressed in the interviews:

> I know that most of the teachers here are frustrated about that [the amount of materials] and the curriculum..... (Tina, SSI#6)

> Well my teaching style changed from that college to here at Park University, but I don't think it's a consequence of different students – I think it's more a consequence of the program. (Stephen, SSI#8)

Moreover, teachers frequently cited an overabundance of materials to cover in these classes which limited the focus and kinds of activities that they could employ:

> …since the English I and II, we have, like, standardized midterms and exams, and we have a reading textbook.....and we have to cover a certain number of articles for the midterm and final exam – I have to make sure I cover those articles. So a lot of times, I spend a lot of class time going over the articles and when I would rather have them do more communicative activities and things like that. (Ian, SSI#12)

Shared *testing* procedures, as mentioned above, also played an important part in determining what and how teachers taught. Overall, shared exams appeared to limit or restrict what teachers did in the classroom:

> …because we really – and it's something that I really don't want to do…and I don't know what else to do – because we are working towards the exams almost. (Tina, SSI#6)

> You know, how do I not waste everyone's time? So, you know, I just stick as close to the text as possible – what's going to be on the test. (Scott, SSI#9)

The final property of administrative issues related to teachers' *working conditions* at Park University and could be organized into various "benefits" and "restrictions". Returning to the survey questionnaire, a strong majority (71.4%) of the full-time instructors indicated that they were satisfied with the salary and benefits at Park University. Other *benefits* included favorable working hours and scheduling. Most full-time teachers (64.2%) said they were generally happy with the number of working hours; however, when asked in more detail, they were quick to point out that the relatively low number of official hours was not representative of the actual workload:

> I think it's quite reasonable, um…very reasonable actually. I know of no other job – teaching job – where you can teach 12 hours a week and get the vacations we get as well. Ah, however, I think there are pretty high expectations placed on us for those 12 hours. And um, I spend a lot of time preparing actually. I probably spend another 12 hours a week just in preparation. And then on top of that there's marking and so on, so, you know, it's a full-time job. (Russ, SSI#4)

Further, teachers expressed satisfaction with the flexible manner in which scheduling was done, but some added that their preferences were not always guaranteed:

> I think the schedule here is fantastic! It's blocked; the hours are great. I'd say there's a lot of work to do outside of the class, but that said, um…I think that the job is challenging and I like that. (Craig, SSI#2)

> We just got our schedule for the next semester – and most people are unhappy. It looks like there was some sort of…just some things missing. I think the person who did the scheduling tried her best and tried to keep certain things in mind, but forgot about some of the important things that could've made people happier. (Martin, SSI#11)

There were other *restrictions* mentioned by teachers which were unequivocal in this area, and none was more prominent than the pressure to perform well as part of the rehiring process. On the survey questionnaire, 78.5% of the full-time faculty agreed or strongly agreed that they felt a lot of pressure to perform well. When asked if they felt that the rehiring process was fair and reasonable, 92.9% either disagreed or strongly disagreed. In the interviews, teachers most frequently declared that the rehiring process was too strongly influenced by student evaluations

of teachers, despite an additional requirement to submit a teaching portfolio along with class observations of all full-time teachers. The significance and unpredictability of student evaluations were in evidence through the frequency of references to them:

> *Researcher: If you go to…I guess the Park University administration site, if you go to there, do you use that?*
>
> You mean for our personal….Oh, yeah, that's where we get our student evaluations. (Val, SSI#3)
>
> *Researcher: Do you use that email?*
>
> I don't, I don't. Um…our student evaluations come, ah, come into the Park University administration site. (Russ, SSI#4)
>
> There's always a bit – in terms of evaluation, the all-driving evaluations – there's a bit of ah…ah…what's the word I'm looking for? – a throw of the dice; you never know what the students, you really don't know. I mean you have a class that feels good; you don't know how that's going to end up. (Rich, SSI#5)
>
> *Researcher: And which of those do you use?*
>
> Um…a handful of them; certainly the ones to read my student evaluations. (Martin, SSI#11)
>
> *Researcher: That's what I was going to ask you about – so you went in there for your pay…?*
>
> I went in there for my pay, and then, actually then Craig said you can see your evaluations or whatever – I just went in for that. (Sophie, SSI#13)

Another *restriction* in terms of working conditions was the large number of students (35) allowed to register for one class section. Further, teachers were often solicited by students during the first week of classes to accept more than the limit. Problems associated with large classes ranged from a lack of intimacy with the students and feelings of low self-efficacy to limitations of in-class activities and personal teaching styles:

> Yeah, yeah, yeah…and that's the thing that is a little bit frustrating, because um…it's kind of hard for me to see individual students' problems and abilities. And for example this past weekend I've been grading paragraphs and um…you know, I'll see students have problems with this or that, but then at the end of the day I still can't match that name on the paper with a face in

> the classroom, so I don't…I don't know which student I'm dealing with here, so…it's…I'm getting used to that still. (Jerry, SSI#1)

> And anyway I think there's slightly different implementation strategies with larger classes than there are with smaller ones. There's definitely, say five or six people talking during a pair activity with a class of 12, so it's much less noisy than a class of 35 when you've got 17 individuals speaking at the same time. (Martin, SSI#11)

Other restrictions were noted by individual teachers; however, most of the other concerns logically fitted into other categories and therefore were listed within each.

7.4.2 Korean Setting

This category was a broad one that could be found at the heart of most of the other categories. It was hard to find issues in any of the categories of administration and infrastructure that did not find their roots here in one fashion or another. Consequently, this category was more accurately thought of as an umbrella category rather than an exclusive set of considerations. Two main properties helped to organize issues in this area: aspects related generally to Korean culture and its social effects were included in "social values", whereas those which related more directly to the governmental and organizational structures in education made up "education*"*. *Social values* could be further broken down into two areas: "traits" and "relationships". Social *traits* consisted of unique qualities which influenced their thoughts and behavior in Korean society. It was important to remember that these qualities were not exhaustive in any sense, but represented values that teachers described as significant enough to affect their lives and teaching in Korea. As such, these *traits* were somewhat skewed toward more critical issues rather than more positive attributes. These characteristics ranged from Koreans' passionate nature and emotional openness to their tendency toward self-absorption and obliviousness:

> I think Koreans seem to be much more comfortable with expressing their emotions than I expected them to be.…However…sometimes I feel that Korean people can become very self-absorbed…yeah…and not really think about their impact on others. (Craig, SSI#2)

> …my overriding goal in there I think is to make the students look outward and look beyond the world that they're, this world they're in…and besides the privilege of where they come from, but also outside of Korea. (Rich, SSI#5)

The second area, *relationships*, was largely governed by the Confucian principles which have structured Korean society and which dictate what is permissible to communicate, to whom, and in what manner. Teachers frequently referred to the hindrances or hurdles that this area presented:

> …the problem is the person at the top can make good decisions if they are fully informed, but in Korea, the system that Korea has, they never are fully informed because the information that follows, that goes up, is carefully worded, or deleted or whatever, so that they never really are getting an informed.…They're not getting enough information to make an informed decision, so they make poor decisions. (Rich, SSI#5)

> Especially, in the mid-nineties, they were still under the "If a guy thinks you're smarter than he is you'll never get married" – so the girls would not open their mouths during the class – because they didn't want to hurt their marriage prospects. And I had a couple of them actually say that to me, so I know that that's true. (Sarah, SSI#7)

Moreover, this overall tendency to allow Confucian social structures to dominate even in the face of compromising values that Western people hold dearer such as honesty and directness could sometimes have grave effects such as those documented in popular books such as *Outliers: The story of success* by Malcolm Gladwell (2008). In one chapter from the book entitled "The ethnic theory of plane crashes", Gladwell hypothesizes that Korean social structures were so strict that they even prevented junior pilots from offering suggestions to senior pilots that would have prevented crashes. Gladwell explains the solution that was eventually found with help from international consultants:

> Their problem was that they were trapped in roles dictated by the heavy weight of their country's cultural legacy. They needed an opportunity to step outside those roles when they sat in the cockpit, and language was the key to that transformation. In English, they would be free of the sharply defined gradients of Korean hierarchy: formal deference, informal deference, blunt, familiar, intimate, and plain. Instead the pilots could

> participate in a culture and language with a very different legacy. (Gladwell, 2008, p. 256)

As shown, they were able to resolve the problem not by attempting to affect the Korean culture as such, but by forcing the pilots to speak in English in the airplane cockpits and thereby eliminating the cultural hierarchy (and the problem) inherent in the Korean language and culture.

In *education*, the second area found in the Korean setting, three main aspects were likewise governed by the Confucian traditions that underpin Korean society: "policies", "roles", and "study habits". Korean governmental *policies* such as the nationwide focus on the college entrance exam posed serious complications for teachers:

> Korea is very ah…oriented toward entering university, so all the high school curriculum is based on entrance examinations, so what happens is that all the students who were focusing on English in their early childhood to like, middle school, would suddenly drop everything and only focus on academic subjects. (Val, SSI#3)

> I mean, you know, they're so stressed out about the college entrance exam. So they get here, it's their first semester, I think they're burned out – I would be burned out too. (Tina, SSI#6)

Moreover, as alluded to in Chapter Two, the overall perceived lack of predictability on the national scale could contribute to an atmosphere of instability at universities:

> …our minister of education is very unpredictable – we don't know what will happen. So we don't know what will happen within the year or within the next years, so 10 years time, we can never predict. (Val, SSI#3)

As described above in Section 7.4.1, this situation was compounded in the English program at Park University by high systematic turnover rates which could contribute to a recognizable decline in proper training techniques and an overall lack of long-term consistency:

> Ah…the experience was really good, um, one thing that I really liked was that ah…the school was kind of run and managed by people who were themselves qualified ESL teachers….Ah, very sadly that is often not the case in Korea. You have, like university professors who…don't really have any experience or knowledge about EFL…making decisions that impact EFL programs. In Prague, basically they knew what they were doing and ah, that was refreshing. (Jerry, SS#1)

> But the thing is that nobody is now equipped to tell them [new TAs] what they're supposed to be doing, because the directors, they don't know because they are changed every two years. And every time a new director comes, she or he is totally blank as to what is supposed to be going on here…So; I think that's the biggest problem that we have. (Val, SSI#3)

Finally, veteran teachers had on occasion experienced incidents in other English programs of sudden program shifts (often for financial reasons) that had led to subsequent mass terminations which negatively affected teacher self-efficacy:

> I think they did it that way to save money! It really was a big program. Now they changed it to…now the Korean teachers – the parts timers – are what, all gone, so cyber classes replaced all the Korean teachers. So there is like six left – before there was like 24 or 25. (Amy, SSI#10)

> I don't know if you heard, at [another university], they kind of shafted everybody.

> Researcher: Was there an explanation for that other than the fact that "we are just reorganizing"?

> Well, you guys are jaded and you're just not putting very much into your teaching and we need fresh blood – that costs less! (Sophie, SSI#13)

The second area of educational factors includes teacher and student *roles*. As in the relational aspects of *social values* outlined above, relationships in education were underpinned by strong Confucian hierarchal beliefs. Strongest in this regard was the traditional expectation that teachers should be the all-knowing center of knowledge in the classroom and students the passive receivers of that knowledge. Teachers in the English program often referenced this fact and the feasibility of implementing contradictory styles which relied on more active student participation:

> My impression of the Korean education system is that they're not encouraged to do a lot of critical thinking in…in high school, so I'm…I'm thinking…they might not be ah…quite as…as outspoken as students in a western country, or quite as willing to question things…or…or…assert their own…ah, viewpoint. (Jerry, SSI#1)

> It's clearly the Korean education system – I think it's obvious that they focus on memorization and they focus on just being so passive in class – those are the problems. And that can be a problem, especially when you're teaching conversation because students are not active; they're so used to being passive. (Tina, SSI#6)

The final aspect, *study habits*, centered on the effects associated with the Korean educational focus on memorization of isolated facts rather than more global, critical or constructive skills. Teachers were particularly interested in this area as it had direct bearing on their in-class techniques:

> I think a problem with a lot of Korean students, when they read, they…their study, their study techniques are kind of dysfunctional – um, you know, they read and then they see a word they don't understand, so they stop and they look the word up in the dictionary; they use their translator – they write the Korean translation underneath and then they carry on. And in the end what they end up with is a whole page with these underlined words and the Korean translations on the top and, if you ask them what the topic or main idea was, they have no idea. (Russ, SSI#4)

> Well, also main ideas; they have to be able to pick out main ideas. I try to do that first because I stress that you don't have to know every single word in order to understand meaning – and they don't believe that! They don't get it! (Sarah, SSI#7)

7.4.3 Resource Availability

This category featured prominently when teachers spoke of their teaching experiences using technology at Park University, particularly in terms of "provisions", "updates", and "maintenance". Overall, teachers expressed their general satisfaction with the high level of resource *provisions* at Park University, both on the survey questionnaire (64.3% of full-time teachers agreed or strongly agreed) and in the interviews:

> Sure.....working here at Park University, there has been more resources available to me than ever before and that's a good thing. (Martin, SS#11)

However, teachers usually emphasized that resources were not a static part of the infrastructure but renewable commodities which depended on regular *updates*:

> It's one of the things that I worry about because we have this brand new building with all this technology, and I'm wondering just how long that's going to last! Soon they're going to be really outdated and become practically useless….Well, I just think it's really important for universities to keep upgrading their technology. (Sarah, SS#7)

A related aspect was the perceived lack of consideration of the use that the resources will be put to by teachers once they were in place:

> The system, the way they set it up is really awkward to use and it really, you know, it's not user-friendly for switching…ah, stuff around when you want to use different things. Um, so that's…I guess that's, that would be the first, even though it doesn't come up a lot, when I do need it, it's very irritating that it doesn't work very well. (Rich, SS#5)

The final property in this category, *maintenance*, was by far the most frequently recognized and cited physical hindrance to the consistent use of technology in the classroom:

> I think a lot of the computers hadn't been serviced in a long time. It was taking like a really long time for websites to ah…to load and stuff. (Craig, SS#2)

> I think it's a common problem for universities actually, for institutions unfortunately to ignore maintenance – that's been my experience. Um…I think administrators get a lot of credit for getting new stuff…um…or building new buildings, but they don't get much credit for maintaining what they have. Unfortunately, that's a fact, and you know, I think that's been my experience in almost every place I've worked at – maintenance has always been an issue. (Russ, SS#4)

7.4.4 Technology Training

This category was closely tied to the *development* category in teacher psychodynamics. In fact, the internal *development* effects often found their causes in external *technology training* and vice versa. It is similar to the 'chicken or the egg' scenario which begs the question of which came first for teachers: technology training or the desire for technology training. For this reason, this category was best thought of in terms of teachers' previous in-service technology training (*"history*") as well as the *"availability*" of training at Park University. When asked during interviews if they had ever received any technology training from any of the universities which they had taught at (*history*), 12 of the 13 teachers responded negatively:

> No, I would love to get that; I mean, I would really..... (Scott, SS#9)

> Absolutely none: in every single job, no training whatsoever. (Martin, SSI#11)

Moreover, from the analysis it was clear that there were relationships not only between the amount of technology training teachers had had (as students and casually) and the desire for more training, but also among the amount of technology training, the level of technology use and the perception of the quality of the resources and support that was available for in-class use. These relationships are explored in more detail below in Section 8.7, but were related to the varying quality and *availability* of support and training that teachers perceived at Park University. For instance, on the survey questionnaire, the full-time teachers were somewhat divided on the question of whether the English department provided adequate training on the use of available resources (Figure 7.4).

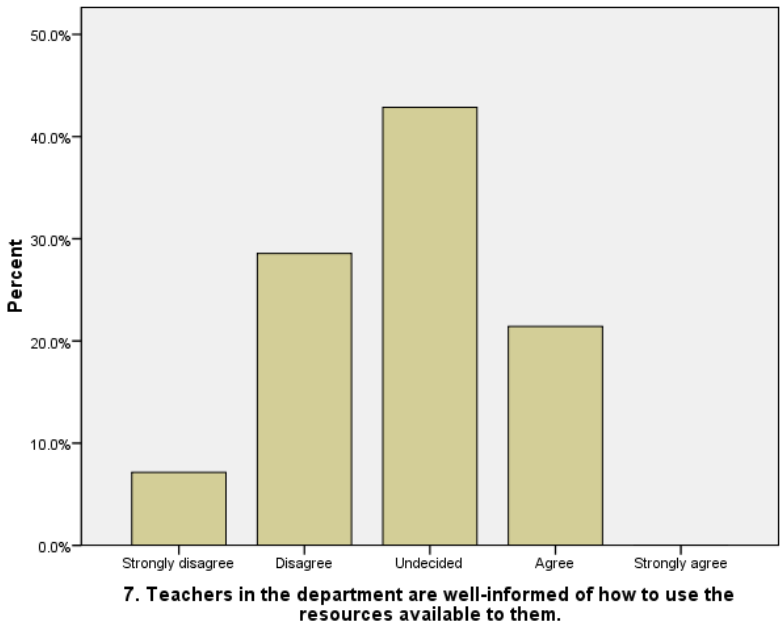


Figure 7.4. Full-time teacher responses to item seven in section two of the survey questionnaire (*n*=14).

When asked to detail their technology training during interviews, teachers' differing opinions on the perceived *availability* of technology training were often based on past experiences which affected their perception of the quality of and necessity for training at Park University:

> Ah, the head over there, the director…he really liked computers. So he brought on speakers from other places and people who just learned like from overseas….At least we were paid for the workshops and so people came….So I think it was more flexible there and there was more need to….Now I have to – it's a part of my life….I don't know how….I would like to know. So I think a workshop at Park University – it can be valuable to the teachers. (Amy, SSI#10)

It is noteworthy that the only teacher who had received technology training in a previous teaching situation was also the most ardent in expressing the need for workshops at Park University. This was significant given the relatively large number of full-time teachers who responded negatively when asked if they would like to have regular teaching meetings and workshops which included computer training (Figure 7.5). One frequently mentioned reason for this was the lack of appropriate leveling of information to suit teachers' particular needs. This need for a targeted approach to training was echoed in a study by Park and Son (2009).

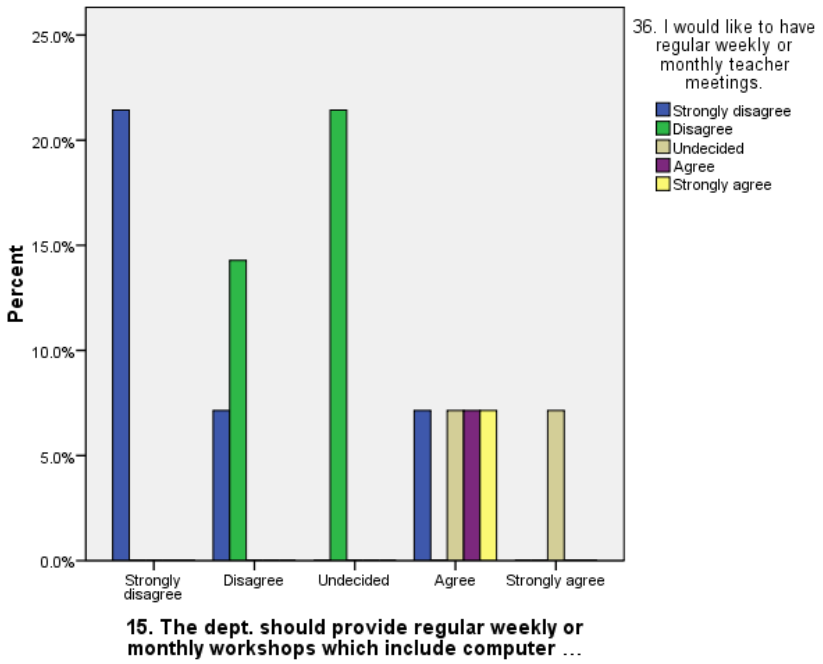


Figure 7.5. Full-time teacher responses to items 15 and 36 in section two of the survey questionnaire (*n*=14).

7.4.5 Student Variables

Although teachers were not asked in detail about their students, general responses did reveal a great deal about this area. Park University student variables were composed of positive "attributes" and confounding "issues". The property, *attributes*, could be further broken down into three main aspects: "professionalism", "ability", and "character". The first of these, *professionalism*, referred to the generally high motivation of students to learn at Park University when compared with teachers' previous universities:

> You know, my impression is that the majority of them seem to be hardworking and interested in learning. (Jerry, SSI#1)
>
> …students are quite diligent; quite conscientious. (Martin, SSI#11)

The second aspect, *ability*, demonstrates the generally perceived high capability of students at Park University:

> Ah…different levels….I think the students are at a much higher level here naturally. (Craig, SSI#2)
>
> I guess that's the first thing I noticed most and well, the level definitely, the level is much higher. (Stephen, SSI#8)

A facet of *ability* which was relevant to the current study and discussed directly with teachers was that of students' technological prowess. The teachers' comments showed that not only were students competent in using technology, but also they were often more competent than the teachers themselves. On the survey questionnaire, 57.1% of full-time teachers either agreed or strongly agreed that their students knew more about computers than they did, which was also supported in the interviews:

> I think they are much better at this than I am. So sometimes I would have problems with, like, the system itself because like, ah…I don't know, somehow, some things would not function properly, so it's usually the students who help me rather than me helping them. (Val, SSI#3)
>
> Oh yeah, they're smart, these students! The students are very computer savvy, and they know what to do. (Tina, SSI#6)

The final aspect entailed Park University students' *character* qualities such as their independence and ability to work on their own. A majority of full-time teachers on the survey questionnaire (57.1%) either agreed or strongly agreed that students possessed these capabilities. Other qualities discussed included aspects related to particular abilities and/or nature, whether inherent or learned at Park University:

> Actually, women tend to be a little more able or find it easier to acquire a new language than men – a little quicker, I think. (Val, SSI#3)

> Well, also the students here are indoctrinated in feminist outlook, so they get it right from the start. So they are a lot more outspoken about what they want in general – and if not they are when they are done with my class! (Sarah, SSI#7)

Conversely, major *issues* frequently mentioned by teachers regarding students could be grouped into two aspects: "class motivation" and "gender issues". Regarding *class motivation,* teachers recognized the strong desire to obtain high grades as problematic: 85.8% of full-time teachers on the survey questionnaire either agreed or strongly agreed that students were overly obsessed with getting high grades. This sentiment was echoed in the interviews through references to the tendency for Park University students to be overly competitive:

> They work very hard and they seem very responsible and they care very much about every single point that they get… (Martin, SSI#11)

> I'm definitely a little bit stricter with like grades and like rules here because the students do tend to be more cutthroat here. (Ian, SSI#12)

However, only 50% either agreed or strongly agreed that students were highly motivated to study in the freshmen English I and II classes (other than general motivation in obtaining high grades in required courses):

> I think there's a few here and there who, who… aren't that interested in the class, but keep in mind that it's a required class, and you know, foreign language is not everyone's cup of tea. (Jerry, SSI#1)

The second aspect was less prevalent, but significant to teachers who experienced its effects. These *gender issues* mainly pertained to relationships and expectations of female instructors at Park University:

> Yeah. But here there's still tension, but I think that tension is rooted in the fact that I'm female and that I'm teaching female students, so that's a little bit different. (Tina, SSI#6)

> I was actually wary of teaching all females because I thought they might be.....Well, what I've heard about here was that the male teachers have it real easy, but they're not really into having female teachers. (Sophie, SSI#13)

There was also the distinct possibility that female instructors suffered lower student evaluations as well. Conversely, female teachers sometimes enjoyed an intimacy with their female students that male teachers could not:

> Or cultural contexts; I try to do a lot of cultural context with my students – especially in my * class because it's all girls, we have a door that closes… (Sarah, SSI#7)

7.4.6 Teacher Community

This last category involved teachers' inter-relationships at Park University. Key factors were organized into two main properties: "Park University community" and specific related "issues". The first property, *Park University community*, contained aspects related to "professionalism" and "sociability". A high degree of *professionalism* was in evidence at Park University as illustrated on item three of section three of the survey questionnaire which asked teachers if they "feel a lot of pressure to perform well as a teacher in the department". Eleven of the fourteen full-time teachers (78.5%) either agreed or strongly agreed with this statement, while only two teachers (14.3%) disagreed. However, it may have been that they were responding in relative terms based on their previous teaching experiences. In either case, the degree of organization at any particular university had a direct bearing on the hiring practices and atmosphere of professionalism maintained among teachers on faculty:

> …part of that was the university I taught at and the attitude of the other teachers, who – many of them were not really teachers – they're much more professional here at Park University. (Rich, SSI#5)

> And some people were trained in teaching and some weren't. (Sophie, SS#13)

The second aspect, which in many ways was more important than the amount of inherent professionalism, was the *sociability* of the teaching faculty. Analogous to success in any team sport, the talent of individual members was essential; however, from the teachers' perspective, it was the team's overall cohesion that was the main determinant of a successful community. In this regard, the level of camaraderie among teachers at Park University was apparent throughout the interviews:

> You know most of the foreign staff here, they feel comfortable around another and I don't think they'd feel…they'd have any problem with going up to anyone and asking them for help. (Craig, SSI#2)

> Yeah, it's been very good. Um…ah, I feel that just about anyone here on staff, I could, I could ask a favor of. If I ever needed help or something, you know, if there was a crisis even, you know, that kept me away from work or something like that, there's plenty of support – there would be plenty of support. I've found of people here – I feel that. (Russ, SSI#4)

Moreover, on the survey questionnaire, a majority of full-time teachers either agreed or strongly agreed that they learned teaching techniques from other teachers (64.3%) and had others seek their advice (71.4%). In addition, half of the full-time faculty (50%) generally described themselves as being "very social". Taken together, the faculty formed a very amicable teaching community in the General English Department at Park University.

However, certain *issues* were discussed as mitigating the intimacy among teachers. These *issues* included "schedules", "offices", and "teachers". On the survey questionnaire, most of the full-time teachers (64.2%) mentioned that they were happy with their *schedules*; however, in interviews, they also expressed that the teaching community was sometimes hindered by teachers' varying *Schedules*:

> Yeah, I think one of the issues of this job is that people come and go on different schedules and don't see each other that much. Whereas over at *University, we were always, all there, together at the same times of day. (Jerry, SSI#1)

> We're on different schedules and more in different rooms – I don't know. (Amy, SSI#10)

A closely-related problem involved the potential for isolation that came with teachers having individual *offices*. While it is commonplace for university professors in other subjects to have their own offices (or to share with one other teacher such as at Park University), for the majority of general English departments in Korea this is usually not the case. English departments at other universities mentioned by interviewees tended to offer one or two large rooms outfitted with various office furniture and computers for numerous teachers to share. During interviews, teachers expressed varying opinions of the benefits and detriments for teachers sharing these large office spaces:

> That was all right; that was kind of nice in a way. I liked it because you know, you could just stand up just like a marmoset: "Hey" – and talk to each other. And I…on the one hand it was a good thing, you know, because you were able to kind of socialize very easily with the other people that you worked alongside. Um…so, yeah, I think that was a positive thing for many of us, but at the same time you know if you had that obnoxious teacher who wanted to play loud music or whatnot, and it disturbed everyone else… (Craig, SSI#2)

> …before, well we weren't in separated offices – different offices – so when it started out, it used to be just desks in a big, large room – we had less privacy….Like people would fight and everyone would be watching, so it was less privacy. But I think it's good to know what other teachers are doing, so if you have good materials you're sharing. I think it was more coordinated and more of the teamwork then. (Amy, SS#10)

Shared offices could add to the sociability among teachers; however, as alluded to above, they could also lead to problems if the *teachers* were not professional and considerate in their use. This was more of an issue in larger departments (which could employ as many as 30 or more teachers) with higher turnover rates which increased the likelihood of inexperienced, inconsiderate or unprofessional teachers being hired:

> I think in teaching experience is very important. So it's not necessarily that you're a good or bad teacher, but having a lot of experience in teaching is very important. Ah…very important – in a way, a requirement. (Val, SSI#3)

> And they got a bunch of people in who are...well, the first couple of people, the first guy had never even taught before and he was living in Thailand, kind of hanging out....So, anyway, they kind of – I don't know what the program's like now… (Sophie, SS#13)

In addition, bad teachers could negatively affect programs in subtle or profound ways which could have a negative effect on the willingness of teachers to participate in the teaching community:

> We had to pay for our own photocopying because… maybe they had bad experiences before…with other teachers who had taken advantage, so they had gone the other way. (Russ, SSI#4)

More specifically, teachers who have had dire experiences with other dubious teachers could become wary or unwilling to work on projects in teams and consequently prefer to be more independent. For instance, on the survey questionnaire, a majority (64.2%) of the full-time instructors disagreed or strongly disagreed when asked if they preferred to work on projects in teams, while conversely the majority (70%) of the part-time instructors (all Korean) either agreed or strongly agreed with the same statement (Figure 7.6). Other factors could be at play such as cultural tendencies (see Limitations, Section 10.6); however, the fact that part-time teachers shared offices and materials freely as a matter of course seemed to be a significant factor:

> Actually, the part-timers, because they have to share the desks and they're sitting in front of each other, they're well coordinated. And so, when we were doing the new books, they divided the readings and they made things and they shared. (Amy, SSI#10)

To illustrate, consider the following information which was anonymously written in the margin of one of the full-time teacher's survey questionnaires:

> It depends on who else is on the team. If everybody contributes, and there are no slackers, then I enjoy being part of the team. (Survey questionnaire, anonymous)

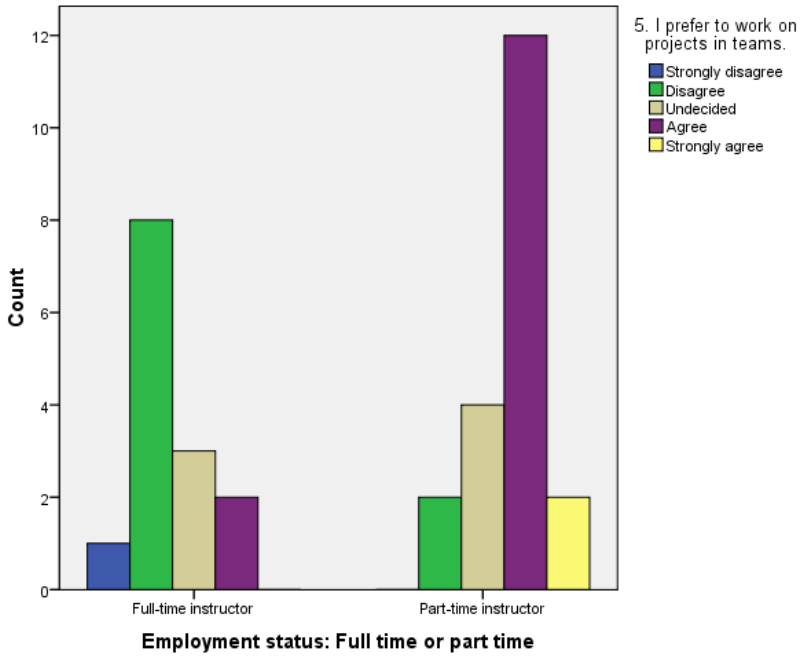


Figure 7.6. Full-time and part-time teachers' responses to item five of section one of the survey questionnaire (*n*=34).

7.5 Summary

Chapter Seven laid out the background to the study's substantive theory entitled "what works" in two major domains: teacher psychodynamics; and administration, infrastructure, student variables and teacher community. As part of the overview of the theory in Section 7.2, a graphic illustration was employed to illustrate the dynamic processes that underpinned the theory. The interaction or balance between teachers' internal factors and external concerns was seen to form the basis on which teachers made decisions in their teaching. Other significant areas included the perceived roles and responsibilities of teachers, students, curriculum, and resources as they related to the interplay between changes in the classroom and teachers' adaptations to these changes.

In Section 7.3.1 through Section 7.3.10, the ten categories of the first (internal) domain, teacher psychodynamics, were unpacked. Each category was illustrated with sample quotations. Section 7.3.1 revealed details of this category concerning the wide array of *teaching beliefs* held by teachers. Section 7.3.2 developed the category, *learning experiences*, by presenting two major properties: *professional* and *personal*. Both of these kinds of learning experiences were seen as providing potential foundations for teacher decision making. The next section, 7.3.4 described teachers' *attitude toward technology* as consisting of *professional* and *personal* properties. Numerous factors were shown to affect the range and degree of technology use in the classroom from physical space considerations and resource availability to the personal experiences and expectations of the teachers. Section 7.3.5 discussed the *professional* and *personal efficacy* of the teachers by describing aspects of their explicit beliefs in their ability to accomplish specific goals. The following section, 7.3.6, detailed the *development* of teachers, including *professional* and *personal* factors. Section 7.3.7 outlined teachers' *innovativeness* under two main properties – *attitude toward change* and *adopter traits* – taken from Rogers' (2003) diffusion of innovations theory. Teachers' beliefs and experiences were described as largely determining their inclination to try new techniques in their teaching. Six generalizations from Rogers' (2003) *adopter traits* were then compared with findings from the current study, showing only one ("Generalization 7-6: Earlier adopters have a greater degree of upward social mobility than do later adopters") to be unconditionally supported in the current study. Next Section 7.3.8 revealed the *interpersonal* and *networking* properties of the *sociability* category. Both beliefs and experiences were listed as important aspects of both as they could have a direct influence on teachers' decision making or in some cases more indirect or profound effects. Section 7.3.9 on teachers' *attitude toward authenticity* looked at the *role of education* and the *role of participants* in classroom learning. This area was shown to involve teachers' perceptions of the need to have lessons match real-world situations and experiences. Section 7.3.10, *personal*, more than others was shown to rely on self-reporting and therefore could contain biased information. The variety of information uncovered also illustrated the diversity of teachers and the influence that personality played in many aspects of what they believed and did, including their teaching. Section 7.3.11 provided a summary of the main categories and issues related to the first domain.

The second domain, administration, infrastructure, student variables, and teacher community, was depicted in Sections 7.4.1 through 7.4.6. This first category in Section 7.4.1 was divided into three main properties: *organization*, *curriculum*, and *working conditions*. Two main aspects of *organization*: *professionalism* and *turnover* showed the high quality of teachers in the program but also the negative effects of faculty changes in evidence at Park University. Section 7.4.2 on the *Korean setting* involved two properties: one related to Korean culture and its social effects, which was shown to make up *social values*, and a second which related more directly to the governmental and organizational structures in education under *education*. The third category (Section 7.4.3), *resource availability*, gave details about three properties: *provisions*, *updates*, and *maintenance*. Overall, teachers were shown to be generally satisfied with the high level of resource *provisions* at Park University – however, only when they were supplemented with regular *updates*. Moreover, the most frequently recognized and cited physical hindrance to the consistent use of technology in the classroom was lack of *maintenance*.

Further, Section 7.4.4 involving *technology training* discussed Teachers' *history* and *availability* in terms of their own experience with training and the perceived amount of training possible at Park University. An overwhelming majority of teachers said that they had never had any in-service technology training and many said that they did not require any at the time of the study. A direct relationship between pervious learning experiences in this area and the desire for more training seemed to be in evidence in personal anecdotes given by teachers and their answers on the survey questionnaire. The next category, *student variables* in Section 7.4.5, considered student *attributes* at Park University and *issues* which resulted from these. Three chief aspects of Park University students – *professionalism*, *ability*, and *character* – were shown as contributing to the high capability of students, including their technological prowess, which was often perceived to be at a higher level than that of many teachers. Section 7.4.6, *Teacher community*, likewise involved attributes of the *Park University community* and *issues*, which hindered stronger connections. In terms of *professionalism* and *sociability*, as shown in Section 7.4.1, a high level was maintained in the general English department, while the level of camaraderie among teachers at Park University was also evident throughout the study. Conversely, *issues*, which were seen as hindrances to better community, included *schedules*, *offices*, and *teachers*.

Chapter Eight: The "What Works" Substantive Theory Processes

8.1 *What Works*

In Chapter Seven, the internal domain (teacher psychodynamics) and the external domain (administration, infrastructure, student variables, and teacher community) were unpacked in order to provide background on the thoughts and concerns of teachers at Park University. This chapter unveils the resulting substantive theory in eight categories which channel the processes of teacher decision making. The eight categories include: "teaching practices", "roles and responsibilities", "community sharing", "use of resources", "satisfaction and self-efficacy", "position", "bias", and "time". As these are best understood through the processes they entail, each is developed below accordingly (please see Figure 8.1).

Figure 8.1. The eight processes (and related categories) of *what works*.

8.2 Teaching Practices: Adapting

The beliefs that teachers held about their teaching sprang from many different sources, but gradually became legitimized standards unique to each individual. Many beliefs and practices were common to all teachers, but the persistence and value of any single held belief found its basis in the unique experiences and resulting perceptions of each teacher. One consistent general belief involved the need for adaptation of materials and methods to match different teaching situations. That is to say, teachers necessarily customized their lessons in order to reach desired short-term and long-term goals. When asked about the merit or frequency of using certain teaching methods, teachers often began their reply with: "It depends on…". It was therefore more constructive to think in terms of teachers' tendencies toward making adaptations rather than focus on individual adaptation decisions. In Table 8.1, eight properties which affected the amount and quality of teachers' adaptations are presented: "changes", "refinement", "teaching style", "kinetics", "risk taking", "orientation", "authenticity", and "technology use". These properties are based on the amalgamation of opinions expressed throughout the study and therefore every aspect does not necessarily coincide with every teacher's individual circumstances. The first property, *changes*, refers to the number of changes which were introduced into the teaching situation from outside sources. The most common source of these changes was the administration of the general English department and/or more broadly Park University policies.

Table 8.1
Eight Properties Related to the Teaching Practices Category: Adapting

More adaptations	Properties ⟷	Fewer adaptations
1. More changes introduced	Changes	Fewer changes introduced
2. More general adaptations	Refinement	More refined adaptations
3. More teaching style independence	Teaching Style	More teaching style dependence
4. More active personality	Kinetics	Less active personality
5. More risk-adverse	Risk-Taking	More risk adverse
6. More practical orientation	Orientation	More academic orientation
7. More authenticity concern	Authenticity	Less authenticity concern
8. More technology use	Technology Use	Less technology use

Once a change was introduced, teachers adapted their current practices as necessary to maintain consistent outcomes. As more changes were introduced, teachers needed to make more adaptations, while fewer changes required fewer adaptations. The second property, *refinement*, relates to the range of possible adaptations from the more general to the more refined in nature. Generally speaking, as teachers made more adaptations in their teaching, their adaptations tended to be more basic or general in nature. Conversely, as teachers made fewer adaptations, they usually made more subtle or refined adjustments. A related concept involves the reuse of materials: when they reused materials more frequently, they tended to use more refined adaptations as opposed to 'starting from scratch'. That is to say, teachers who developed new class lessons and materials tended to make more general adaptations. The third property, *teaching style*, involves the amount of independence that teachers expressed in relation to how they prepared for and taught their classes. The amount of adherence to or dependence on administrative expectations and other teachers' practices had a direct bearing on the number of adaptations that they employed. This aspect is developed further in Sections 8.4 on *sharing*, 8.5 on *relying*, and 8.6 on *satisfying*.

The fourth property, *kinetics*, takes into account the amount of activity that teachers professed in their teaching styles. Teachers with more active personalities tended to make more adaptations in their teaching, while teachers with less active personalities still made adaptations but relatively

fewer than the former group. The fifth property, *risk taking*, as the name implies, is the amount of risk that teachers were willing to take in making adaptations. As with *refinement*, those willing to take more risk tended to make more numerous and general adaptations, while those who displayed fewer risk-taking qualities tended to make fewer and/or more refined adjustments. A caveat to this property is that those who ranked high on the amount of risk in their teaching made more general and refined adaptations in relation to other less-risk taking individuals.

The sixth property, *orientation*, displays the relative position of teachers on the practical/academic continuum. Teachers who emphasized the need for more practical aspects in their lessons also tended to make more adaptations. On the other hand, teachers who seemed to stress more academic approaches still made adaptations; however, these were at a lower level than the former group. The seventh property, *authenticity*, is highly aligned with *orientation* in that more concern for the use of authentic materials necessitated more adaptations which tended to make lessons more practical in nature. Conversely, less authentic materials use required fewer adaptations of the curriculum in favor of the academic focus inherent in more static or given materials. Moreover, fewer authentic materials tended to predominate in required and shared curriculums such as English I, II, and III courses. This was perhaps not surprising, given the difficulties involved in arriving at a consensus and maintaining standards among a large group of teachers and the administration. The final property, *technology use*, shows that using more technology in teaching required more adaptations, while using less technology required fewer adaptations. This is a key finding in that, all other things being equal, teaching with more technology required more adaptations, and hence more work, for the teachers willing to do so. However, there is evidence that over time (and in favorable circumstances) this increased workload may be better viewed as an investment rather than a liability, in terms of both curriculum development and personal or professional development. This area is highlighted below in Section 8.5 on *relying*.

8.3 Roles and Responsibilities: Controlling

In the previous section, it was shown that teachers necessarily adjusted their teaching materials and methods through the use of adaptations (characterized by the expression: "It depends on…"). In this section on the category of controlling, the need for teachers to conduct a certain order in the classroom through the establishment and maintenance of teacher and student roles and responsibilities can be typified by the expression, "Everyone has to know what's expected of them". Ten properties emerged in this category which affected the amount of teachers' control over their classrooms, including "teacher role", "alignment", "risk-taking", "image", "test teaching", "pair/group work", "customization", "contingencies", "class size", and "crowdedness" (Table 8.2). The first property, *teacher role*, is one that is normally agreed upon in contemporary language-teaching education: teachers who liked to have more control of their classrooms tended to center their classroom activities around themselves, while those who valued control less tended to have more student-centered classrooms. Some teachers who recognized their classrooms as being more teacher-centered justified the situation as being an undesired but necessary conclusion reached through trial and error of what works best in teaching at Park University.

Table 8.2
Ten Properties Related to the Roles and Responsibilities Category: Controlling

More teacher control	**Properties** ⟷	**Less teacher control**
1. More teacher-centered	Teacher Role	More student-centered
2. More culturally-aligned	Alignment	Less culturally-aligned
3. More risk averse	Risk-Taking	More risk-averse
4. More teacher image concern	Image	Less teacher image concern
5. Fewer unexpected events	Contingencies	More unexpected events
6. More test-teaching orientation	Test Teaching	Less test-teaching orientation
7. Less pair and group study	Pair/Group Study	More pair and group study
8. Less customization	Customization	More customization
9. Less concern with large classes	Class Size	More concern with large classes
10. Less crowded classroom concern	Crowdedness	More crowded classroom concern

The second property, *alignment*, refers to the amount of consistency between teachers' teaching styles and the preferred methods of teaching in the prevailing culture. As discussed above in Sections 2.3 and 2.4, owing to the supremacy of Confucian principles in Korea and Korean education, teacher-centered classrooms are historically and contemporarily the norm. This expectation could weigh heavily on teachers and pressured many into more teacher-dominant classrooms. Alternatively, teachers who were less culturally-aligned or less concerned about Korean cultural expectations conducted classes which exhibited less teacher control. A factor in this regard involved the rehiring process which was heavily-weighted toward student evaluation of teachers. While it was uncertain if more teacher control or teacher-centered classrooms resulted in higher student evaluations of teachers (and thus more job security), teachers consistently expressed this belief, citing student expectations based on students' learning experiences through high school. This aspect is discussed more below in Section 8.6 on *Satisfying*. The third property, *risk-taking*, was found to be related to the amount of teacher control in the classroom. Teachers who tended to take fewer risks in their teaching also tended to value more control in their classrooms. Conversely, loosening up control of the classroom

represented a more risky behavior for many reasons, including possible conflicts with the prevailing culture as mentioned above, and the natural tendency of maintaining tighter control to involve fewer novel or risky elements. The fourth property, *image*, shows that teachers who are more concerned about how they are viewed as teachers tended to take more control of their classrooms, while those who have less concern for their image were more willing to have less control over their classrooms. Another way to look at this property is that teachers who preferred more control of their classrooms also preferred to have more control over their teaching image, with the main difference between the two being a matter of scope or degree. Image was an important property which affected many other categories such as *sharing* (Section 8.4), *relying* (Section 8.5), and *satisfying* (Section 8.6), and therefore is developed further in each of these sections below.

The fifth property, *contingencies*, revolves around the number of unknown or novel experiences that the teacher experiences in the classroom. Whether these experiences are viewed positively or negatively seemed to be related to the amount of control desired. Teachers who deemed unexpected events to be hindrances or distractions from their prescribed course were more likely to value tighter control of their classrooms, while those who were more tolerant or even welcoming toward these events desired less control. There may have been times when teachers altered the amount of control they exercised in the classroom, such as taking more control when their classroom activity schedule became more crowded or demanding. Similarly, variation on the sixth property, *test teaching*, was strongly affected by the amount of time available in the classroom for completing required activities. Teachers whose lessons centered more on materials that the students would be tested on in subsequent departmental exams necessarily took more control of their lessons. Equally, as teachers were able to shift their lesson focus away from teaching test materials, they were also able to loosen their overall control of the classroom. The seventh property, *pair/group study*, covers the relationship between teacher control and the organization of classroom activities. Teachers who wanted to have more control of the classroom tended to use pair and group study less, while those who more often broke up their classrooms into pairs or groups did so only by shifting control of the learning to these subdivisions. Teachers who valued control could also employ pair and group study for portions of their class, and teachers with low control could have parts of their lessons as more teacher-controlled; however,

in both cases, when classes were divided, they were characterized by less teacher control than when they were not in pairs or groups.

The eighth property, *customization*, involves the degree to which teachers modify or adapt their lessons to suit the circumstances and needs of individual students within any given class. Teachers who displayed more control tended to customize their lessons less, while those who had less control concern customized their lessons more. However, certain classes by nature allowed for more customizing, while others hindered it. For instance, freshman English I, II, and English III courses with standardized curriculums and larger numbers of students presented more challenges to customizing, while upper-level, specialized classes with fewer students more readily lent themselves to customization. The ninth property, *class size***,** addresses the effect of student numbers in classes on teacher control. Larger class sizes were less of a concern for teachers who exhibited more control over their classes, while teachers who more frequently shifted control over to students had more difficulty with larger class sizes. On the contrary, use of pair and group work by teachers with less control tended to mitigate the degree of difference between the two ends of the range. The final tenth property, *crowdedness*, refers to the physical hindrance caused by classrooms with too many student desks and their effect on teachers' control. As with the ninth property, teachers with more control felt less inconvenience in crowded classrooms than teachers with less control. Teachers with more control tended to teach more from the front of the classroom and did not often require students to rearrange their seating arrangements. Teachers with less control often desired a larger 'teaching zone' in which to teach and therefore preferred to have more room to interact with students during their lessons. This property was later reaffirmed when new classrooms were made available in 2008 with fewer desks, offering teachers in the latter group somewhat more access and freedom than had been previously available.

8.4 Community Sharing: Sharing

As teachers share a number of commonalities, it seems intuitive that the purposeful sharing of materials and methods could have only positive effects on the quantity and quality of teachers'

work. This was particularly true when teachers taught the same classes with departmentally prescribed curriculums and syllabuses such as English I, II, and III – as more than one teacher exclaimed: "Why reinvent the wheel?". Eight properties found in this category include: "position", "orientation", "separation", "dependence", "style dependence", "image", "training desire", and "restrictions" (Table 8.3). The first property, *position*, is a highly significant one in that teachers' position in the department had an important bearing on the likelihood and frequency of their sharing. As evidenced throughout the research, part-time teachers as a whole engaged in more sharing than full-time teachers. For instance, when a new textbook was introduced into the curriculum, the part-time teachers employed an informal division of labor to create activities for each section. Through sharing, they were able to do considerably less work without adversely affecting the quality of activities developed. By contrast, full-time teachers did variously engage in sharing as well, but to a lesser degree. As a result, each full-time teacher had to develop her or his own activities for the majority of the materials.

Table 8.3
Eight Properties Related to the Community Sharing Category: Sharing

More sharing	**Properties** ⟷	**Less sharing**
1. More part-time teachers	Position	More full-time teachers
2. More culturally-aligned	Alignment	Less culturally-aligned
3. Less separation from group	Separation	More separation from group
4. More dependence	Dependence	More independence
5. More teaching style dependence	Teaching Style	More teaching style independence
6. More teacher image concern	Image	Less teacher image concern
7. More desire for training	Training Desire	Less desire for training
8. Fewer departmental restrictions	Restrictions	More departmental restrictions

The second property, *alignment*, helps explain one of the reasons part-time teachers were more likely to share. Teachers whose orientation toward the dominant culture was more aligned tended to share more than teachers who were less culturally-aligned. Although there were a couple of notable exceptions, most Korean teachers (either part-time or full-time) tended to value and engage in sharing more than foreign teachers. It is believed that the primary reasons for this

related to cultural background differences between Korean and Western teachers such as the relative importance of independence and individual creative effort.

The third property, *separation*, relates an additional reason part-time teachers tended to share more than full-time teachers. Part-timers were not provided with individual offices at Park University, but instead took up one large faculty room which facilitated sharing. Full-time teachers, on the other hand, enjoyed individual offices occupied only by themselves and one other teacher; however, this could prove to be a strong deterrent to sharing. For instance, two full-time teachers still in their first year of teaching at Park University sensed a lack of contact and sharing among the full-time instructors owing to physical separation and scheduling conflicts: they enjoyed having semi-private offices but, for the sake of sustaining teacher community, felt that one large communal office was more beneficial to maintain rapport and encourage sharing. Moreover, teachers at Park University enjoyed a certain amount of freedom in deciding their working and office hours, and therefore chose schedules which best suited their lifestyles. This also tended to separate teachers who came and went at different times: in the extreme, some office mates saw each other only once a week for only a few hours or less.

However, as briefly touched on above, owing to the relocation of the department into a newly-constructed building in 2008, new classrooms and teacher-offices were provided which were more conveniently located in a single line on one floor (previously offices and classrooms were dispersed on multiple floors). Additionally, the new offices and classrooms all had transparent glass walls which allowed anyone to peer inside from the hallway and ascertain who was available and whether they were currently busy. Teachers had mixed feelings about the dearth of privacy afforded by these glass-walled offices; however, it was apparent that the new design had facilitated more cooperation, community, and consequent sharing amongst the full-time teachers.

The fourth property, *dependence*, is an aspect of both *cultural alignment* and teacher personality. The more dependent that teachers were the more likely they were to embrace other teachers and seek to share methods and materials. More independent teachers, on the other hand, often relied on their own efforts and therefore tended to share less. As mentioned above, owing to their alignment with a culture that values independence less, Korean teachers tended to be more

dependent than western teachers. However, individual teachers' personality traits seemed to have a mitigating effect on this tendency; that is to say, some Korean teachers (whether full-time or part-time) were by nature more independent than their western counterparts and vice versa. The fifth property, *teaching style*, can be thought of as an offshoot of *cultural alignment*, *separation*, and *dependence* which affects the likelihood of teachers to develop their own individualized teaching style and as a consequence to share less. Relatively more sharing engaged in by teachers usually indicated more likelihood that they shared more common teaching methods and techniques. Conversely, less interaction and sharing tended to result in fewer commonalities and more independence in teaching methods. As Korean part-time teachers shared more owing to a common office and culture, they also tended to hold more consistent teaching methods and techniques. Full-time western teachers, by being divided into semi-private offices and placing more value on independence, tended to have relatively more individualized teaching methods and techniques. Two outlier illustrations which helped to develop this property involved two instances where the boundaries between status and culture had been blurred. Three full-time Korean teachers began their teaching careers at Park University as part-time teachers, and one Korean-born teacher was raised and educated in a western country. Of the former three Korean teachers, two highly valued sharing and had voiced the need for full-time teachers to share more, while the third was more independent and engaged in sharing less. In the second situation, though fluent in Korean and immersed in Korean culture, by having been raised and educated to value more independence (among other qualities), the Korean-born teacher was more independent and tended to engage in sharing relatively less than both of the teachers in the former case.

The sixth property, *image*, finds that teachers who were more concerned with how they are viewed by the administration and other teachers tended to engage in sharing more than teachers who were less concerned about their image as teachers. The connection between image and sharing was that more concern for image was directly related with more concern for department standards, which in turn encouraged more sharing owing to shared standards. However, this is not to say that those teachers who shared more did so only as a result of having more image concern; there are any number of reasons (as other properties in this category attest) why teachers engaged in sharing other than image concern alone. The seventh property, *training*

desire, has perhaps the most direct relationship with interest in sharing. Teachers who desired more training also tended to share more, while those who had less desire for training tended also to have less interest in or engagement with sharing. Moreover, the line between training and sharing is particularly difficult to draw when considering training in terms of its formal and informal aspects. For instance, the majority of full-time teachers reported that their ongoing technology training whether frequent and extensive or sporadic and restricted came primarily informally from personal research and/or from conversations with other teachers. As suggested here, there was a distinction to be made in certain instances between independent learning activities (the first instance) and social behavior (the second instance), which may have had other motivations as their impetus rather than resulting exclusively from learning.

The final eighth property, *restrictions*, involves the effects of administrative policies and procedures which unintentionally had an adverse affect on sharing. With fewer restrictions on sharing came more sharing, while more restrictions inhibited sharing. The primary constraint in this regard involved the rehiring process which occurred once a year (every other semester) for the first three years of a teacher's employment and then once every two years (once every four semesters) for all subsequent years. As part of this process, teachers had to submit a teaching portfolio which contained all of the teacher's efforts in terms of the preparation of teaching materials, providing student feedback and other interactions with students (including a critiqued videotape or in-class observation of a lesson as mentioned in Section 5.7). The guidelines for the submission of materials for the portfolio expressly advised teachers not to submit any materials not specifically created by them. This policy was not meant to deter sharing but to make clear the efforts of individual teachers for evaluative purposes; however, the unintended consequences for sharing were significant. According to this policy, any shared or borrowed materials were not permissible and therefore teachers who shared more would have less to submit in their portfolios which may have had a negative impact on their standing – and in the extreme could involve the possibility of not being rehired.

8.5 Use of Technology: Relying

"You've got to be able to trust them" might be an appropriate statement when considering the willingness of teachers to rely on technological resources in their teaching. As implied in the use of the word "trust", teachers had to have faith or assurance that the technology they were employing would perform in the expected manner every time they called upon it; in other words, it had to be reliable. Or, equally, teachers had to possess confidence in their ability to handle situations that arose when that technology proved unreliable. Seventeen properties were found which influenced teachers' willingness to use technology, including: "tech orientation", "tech training", "practicality", "authenticity", "teaching style", "teaching novelty", "risk", "image", "learning bias", "work ethic", "tech workload", "preparation", "chalkboard use", "satisfaction", "maintenance", "future tech use", and "tech culture" (Table 8.4).

Table 8.4
Seventeen Properties Related to the Use of Technology Category: Relying

More willing to rely on technology	**Properties** ⟷	**Less willing to rely on technology**
1. More technology orientation	Tech Orientation	Less technology orientation
2. More technology training	Tech Training	Less technology training
3. More practical orientation	Practicality	More academic orientation
4. More authenticity concern	Authenticity	Less authenticity concern
5. More teaching- style independence	Teaching Style	Less teaching style independence
6. Less risk-averse	Risk	More risk averse
7. More willing to try new teaching techniques	Teaching Novelty	Less willing to try new teaching techniques
8. Less teacher image concern	Image	More teacher image concern
9. More personal learning bias	Learning Bias	Less personal learning bias
10. More work ethic	Work Ethic	Less work ethic
11. Tolerate increased workload with tech more	Tech Workload	Tolerate increased workload with tech less
12. More preparation/less in-class setup	Preparation	Less preparation/more in-class setup

13. Less chalkboard use	Chalkboard Use	More chalkboard use
14. Less satisfaction with technology	Tech Satisfaction	More satisfaction with technology
15. More concern with maintenance	Maintenance	Less concern with maintenance
16. More likely to use technology in the future	Future Tech Use	Less likely to use technology in the future
17. More technology-supportive culture	Tech Culture	Less technology-supportive culture

The first property, *tech orientation*, describes the predisposition of teachers toward the use of technology. Those who were more orientated toward the use of technology were more likely to utilize it, while those who were less orientated were less likely to make use of it. What is more, teachers who were more comfortable with the interface and quirks involved in using technology seemed to be able to persevere in trying situations, while others who were less at ease may have given up after an initial attempt or later when serious problems first arose. The private use of technology was not always a direct indicator of use in the workplace, suggesting that technology orientation had different facets which applied to different situations. The second property, *tech training*, involves the amount of formal and informal technology learning that teachers had had in their lifetimes. Teachers with more technology training were more willing to employ it at work, while those with less training were less likely. However, it may very well have been that teachers who were more oriented toward technology use had more interest in it as well, which led them to seek more training. Nevertheless, teachers with more training were more informed about the possibilities and methods involved and therefore were more comfortable in attempting their use. Moreover, teachers who began their teaching careers more recently were more likely to have had more technology training and therefore were also more likely to want to use it. This does not mean, however, that younger teachers had all had more technology training than older teachers. In a few cases, older teachers who had begun their careers later had equal or better training and were as likely, if not more, to use technology in their teaching.

The third property, *practicality*, positions teachers according to the amount of focus they placed on practical or academic aspects in their teaching. Teachers with more practical concerns or focus tended to be more willing to use technology, while teachers with more academic approaches were less willing to do so. Further, teachers who had had more background, training

or experience in second language teaching such as ESL or EFL tended to have more practical concerns than teachers coming from more academic-oriented fields such as English literature. The fourth property, *authenticity*, was a consistent predictor of teachers' willingness to rely on technology. Teachers who placed high value on authenticity were much more likely to use technology than those who felt it to be less important. As emerged during the research, all teachers did have at least some concern for teaching authentic language to their students; however, not all were careful to update the language, usage and context of their teaching to match students' needs. More succinctly, this encompasses students' methods of study, peer interaction and lifestyles which – as unanimously recognized by teachers – included a large amount of technology such as computers (mainly for Internet use and chatting), cell phones (for calls and text messaging), and various media players (for multimedia and entertainment).

The fifth property, *teaching style*, has most of the same qualities as described earlier in Sections 8.2 and 8.4, but with some important distinctions here. The more independent that teachers were in their teaching, the more likely they were to be willing to rely on technology, but only initially, and primarily for full-time teachers. Teachers who were less independent were also less likely to feel a need to break from the required or accepted methods of teaching shared by other teachers in the department. Therefore, for full-time teachers, the required or accepted (in the sense of shared practice) method(s) of teaching did not normally include the use of technology. Therefore full-time teachers who used technology tended to be more independent in their teaching methods than those who did not use it. A caveat to this aspect is that, as more independent-teaching full-time teachers gained more experience in using technology, they tended to suffer more problems with the classroom technology and therefore began to take personal measures to use more reliable technology; that is, they reverted back to not relying on the provided technology. On the other hand, part-time teachers as a group tended to use more PowerPoint presentations and word processing programs as part of their classroom teaching (and additionally more supplementary use of departmental websites). In this case, part-time teachers who were more independent in their teaching methods did not necessarily use more technology than less independent part-time teachers. Evidence from the development of this property points to an underlying factor that seems to have had a greater influence in this area: risk.

The sixth property, *risk,* is also more complicated in that teachers' personalities affected not only the amount of risk they were willing to engage in, but also their level of experience. As using technology involved the use of new and untried techniques and resources, it involved more risk. Using more technology, therefore, was done by teachers who were more risk-averse, whereas teachers who used less technology were more likely to be risk-averse. However, as teachers gained more practice in the use of technology in the classroom, they came to anticipate problems (based on past negative experiences) and therefore often their initial willingness to risk a new technique involving technology could evolve into a more conservative position which was less risky. The seventh property, *teaching novelty*, is directly related to risk-taking and states that teachers who were more willing to try new teaching techniques were also more willing to rely on classroom technology. Teachers who were more reluctant to attempt new teaching techniques were likewise more reluctant to rely on classroom technology. However, as was the case in the sixth property, experience was a confounding variable. As teachers gained more experience, including those who initially tried more new techniques, they could sometimes become equally less willing to do so as well as less willing to rely on technology. This property is also highly correlated with many properties in Section 8.7, *growing*, discussed below.

The eighth property, *image,* shows that teachers who were more concerned with their teaching image were less willing to rely on technology, while those with less concern were more open to relying on technology. Specifically, the maintenance of teacher image involved control of that image which was lessened by more reliance on outside factors, including technology. Image affected many categories owing to the nature of classroom teaching as a performance which relied on a number of constituents, including the teachers, students, and ultimately the administration. However, one important aspect of image concern as it relates to willingness to rely on technology should be included here. Teachers who were concerned with image but did not use technology regularly in their teaching sometimes viewed the use of technology by other teachers as being "more professional" (Jerry, SSI#1) or even "sexy" (Craig, SSI#2). Thus, some who did not regularly use technology in their teaching but had high image concern might be more willing to *try* new technology as opposed to relying on it regularly in their teaching. The ninth property, *learning bias*, involves the amount of desire for personal learning and its effect on resource use. Teachers who had a higher bias toward personal learning (those who sought and

maintained higher levels of personal learning) were more willing to rely on technology than those who had less involvement with personal learning. Relying on technology required teachers to be informed and updated (in the case of computer and multimedia player use) on their use and therefore those who naturally stayed more informed and updated were also more likely to use technology regularly. The categories of *growing* (Section 8.7) and *living* (Section 8.8) are closely aligned with personal learning and therefore also shed light on this property.

The tenth property, *work ethic*, reveals that teachers with a higher work ethic were more willing to rely on technology, unlike teachers with a lower work ethic who tended not to rely on classroom technology. This is not to imply that teachers who did not rely on technology were lazy, but that the relative amount of investment in the workplace had a bearing upon classroom resource use. As illustrated in the next property, using and relying on most technology required more effort than not doing so, and consequently only teachers who were willing to contribute that extra amount of investment persevered in their regular use. The eleventh property, *tech workload*, refers to the amount of tolerance that teachers had toward the perceived increase in work associated with more technology use. All teachers held technology use in the classroom to be more taxing, regardless of whether they employed it regularly in their teaching or not. However, as mentioned earlier, teachers who were more tolerant of the added effort were more likely to persevere in its use even when aspects proved unreliable or the workload was considerable. Moreover, various coping strategies helped these individuals to justify the extra effort. For instance, the increased workload was often seen as an initial short-term investment that was believed to yield an overall long-term saving. Another common explanation involved the need to create additional backup materials and methods in the event of breakdown, which was discounted by other benefits of technology such as the versatility of using electronic documents both in and out of the classroom (for lectures and easy posting on the Park University site for student access and downloads).

The twelfth property, *preparation*, is one of the most important considerations for teachers and is also critical when considering the willingness of teachers to rely on classroom technology. Teachers had to prepare - at least in part - for all their lessons; however, they could vary the amount of preparation of some aspects based on their willingness to employ the provided

technology. As teachers relied more on the technology, their preparation time increased; however, importantly, their in-class work or setup decreased. Conversely, teachers who were less willing to rely on technology found their preparation lessened; however, their in-class setup for activities and lectures was relatively greater than those who used more technology. For example, teachers could create a Word processing document or PowerPoint presentation for a given lecture or activity once which could then be reused for multiple sections or courses, whereas not using technology required teachers to duplicate the given lecture and/or materials for each section or course – whether in oral or paper form, or through chalkboard use. Once again, teachers more willing to rely on technology recognized this as a significant juxtaposition: spending more time outside class in preparation reduced setup-time in the classroom, whereas spending less time in preparation required more setup-time and often wasted class time. Other teachers cited additional factors related to perceived restrictions that technology imposed on lessons: using technology allowed the preparation of materials before class, but limited the amount of customization that could take place during class.

The thirteenth property, *chalkboard use*, as illustrated in Chapter Six, was in direct opposition to technology use. Teachers who used the chalkboard (or whiteboard) more for their lessons were directly less willing to rely on technology in their teaching, while those who did not use chalk (or markers) for various reasons were more willing to rely on technology. Most teachers, for instance, suggested that using chalk was old-fashioned and messy (issues related to teacher image), while a minority said they preferred using chalk because of its tactile, kinetic or artistic qualities. As noted at the end of Section 7.4.6, owing to relocation of the general English department into a new building during the study, the effects of certain physical considerations could be noted. In this case, new classrooms were outfitted with white rather than chalkboards and therefore many complaints about chalk no longer existed. However, other comparable new problems seemed to have largely taken their place. For instance, the whiteboards required special markers that were expensive and more difficult to obtain and replace, necessitating teachers to remember to carry them with their teaching materials from class to class. Moreover, an apparent error by the cleaning staff in using a harsh cleaner on many of the boards made them more difficult to erase even when these special markers were used. Further, some teachers had issues merely with the fact that using chalk or markers was strenuous or that their use required the

teacher to put his or her back to the classroom for large portions of the lesson. Whatever the case, teachers' idiosyncrasies played a large role in this category as they did in Section 8.8 on *Living*.

The fourteenth property, *tech satisfaction*, reveals teachers' overall assessment of the available technology as it relates to use. Seemingly counter-intuitively, teachers who were less satisfied with the technology in the classroom were more likely to be using it more in their teaching, whereas those who used technology less viewed it more positively. This seems counter-intuitive only until two important factors are taken into consideration: practicality and culture. Teachers who used technology more regularly were more likely to encounter problems by placing more demands upon it, while those who used technology less encountered relatively fewer problems and therefore held a more positive view. In terms of culture, part-time teachers (all Korean) overwhelmingly reported being generally satisfied with the reliability of the available technology, even though only a minority acknowledged that it had always worked when called upon. Most full-time teachers (who are mostly Western), on the other hand, felt dissatisfied with the reliability in the same circumstances. As discussed in Section 7.4.2, this may have been a consequence of the strong influence of Confucianism in Korean culture which does not encourage criticism of superiors. Another facet of this may involve the reliance on "After-Service" ("AS") – "free" service for repairing broken machinery – which is a common practice throughout Korean society, including education. Contrary to the Western emphasis on regular maintenance and self-reliance for small repairs, Koreans rely exclusively on "AS" for almost all repairs large or small and consequently, in practice, value regular maintenance less. This practice is particularly problematic for teachers relying on technology in the classroom. As found in the fifteenth property, *maintenance,* teachers who were more willing to rely on classroom technology were also more likely to be concerned with the maintenance of that technology. Specifically, teachers using technology more regularly came to depend on its timely use and therefore emphasized the importance of regular maintenance rather than "AS", as the latter created delays, which wasted class time, or in more serious situations made lesson plans unpredictable and/or obsolete. More discussion of the level of satisfaction with technology is found below in Sections 8.6 and 8.7.

The sixteenth property, *future tech use*, shows that teachers who are more willing to rely on technology during the study were also more likely to use it in the future, while those who relied on technology less in their teaching (during the study) said they will likely use less technology in the future. However, most full-time teachers agreed that technology will play a larger role in education in the future; on the other hand, many were uncertain to what degree they will personally be willing or required to use it, which is an important distinction. This is because, in the final property in this category, *tech culture*, the relative importance of expectations and support for technology was shown to influence greatly teachers' willingness to rely on it in their teaching. School cultures which were more supportive or had higher expectations for technology use fostered teachers to demonstrate more use and reliance, whereas less-supportive cultures tended to hinder teachers' willingness. This property, however, is somewhat tentative owing to teachers' varied perceptions of the level of support for technology at Park University during the study and the lack of direct comparison with other university English departments. Nevertheless, overall teachers did express the importance that they subscribed to department expectations and therefore a clear inference can be drawn which equates these expectations with their willingness to use and rely on technology in their teaching both now and in the future.

8.6 Satisfaction and Self-Efficacy: Satisfying

When asked "What makes you happy?", teachers gave a wide array of answers; however, upon closer inspection, certain patterns eventually surfaced. For instance, teachers said that they highly valued having control over their teaching methods and materials. They also appreciated stable teaching situations in which they could predict future needs and obligations. Moreover, personally they liked to be respected by their students, peers, and the administration, but ultimately these concerns were subordinated to their perception of success in terms of teaching aims and corresponding student achievement. Doing what works, therefore, was often a matter of doing what was satisfying both professionally and personally. However, owing to differences between competing interests (explained below), teachers' levels of satisfaction and self-efficacy could vary according to their experience, personality and position. Ten properties that had influence on teacher satisfaction were: "self-efficacy", "security", "local "experience",

"experience", "influence", "teaching style", "image", "tech belief", "tech knowledge", and "Word use" (Table 8.5).

Table 8.5
Ten Properties Related to the Satisfaction and Self-Efficacy Category: Satisfying

More general job satisfaction	**Properties** ⟷	**Less general job satisfaction**
1. More self-efficacy	Self-Efficacy	Less self-efficacy
2. More secure in position	Security	Less secure in position
3. More local teaching experience	Local Experience	Less local teaching experience
4. More teaching experience	Experience	Less teaching experience
5. More influential	Influence	Less influential
6. More teaching style independence	Teaching Style	More teaching style dependence
7. Less teacher image concern	Image	More teacher image concern
8. Less belief in technology use	Tech Belief	More belief in technology use
9. Less technology knowledge	Tech Knowledge	More technology knowledge
10. Relatively more word processing use	Word Use	Relatively less word processing use

The first property, *self-efficacy*, confirms that teachers with more belief in their own ability to affect outcomes were generally more satisfied than teachers with less self-efficacy. Teachers liked to believe that their actions would lead to achievement and therefore felt less satisfied when they were unable to do what they felt was needed or when they perceived that circumstances prevented their success. This could occur when external factors (described above in Section 7.4) directly restricted certain methods and/or when those factors indirectly swayed teachers to rule out desired choices which they knew through experience were not likely to succeed. It should be noted that the extensive (and somewhat controversial) causes and effects of 'self-efficacy' as found in the literature (Bandura, 1977; Grothmann & Patt, 2005; Prentice-Dunn & Rogers, 1986) are not developed here as this was not the focus of this study. Rather, self-efficacy in this context is a general property that specifically refers to teachers' perceptions that their considered actions

led directly to desired outcomes (further discussion of self-efficacy is given in Chapter 10 in relation to the limitations and implications of this study).

The second property, *security*, parallels self-efficacy in that more job security was directly related to more self-efficacy and more overall satisfaction at work. Conversely, teachers who were less satisfied for various reasons also tended to feel less personal security and/or more pressure from the workplace to perform in certain prescribed ways. However, a causal relationship should not be inferred in this situation as it is unclear how the three factors (self-efficacy, satisfaction, and security) relate to one another beyond covariance. For instance, did low self-efficacy downgrade feelings of security which then led to less satisfaction, or did it work the other way around? It is therefore helpful to clarify the meaning of *security* as in some ways being synonymous with self-confidence in the workplace. Teachers who were more confident that their behavior and methods were competent and suitable to teaching at Park University naturally felt more satisfaction in what they did whereas those whose actions were less assured about these issues tended to feel less satisfied.

The third property, *local experience*, bolsters the previous properties by showing that, as teachers gained more experience at Park University, they tended to be more satisfied in their positions. These teachers had learnt through experience what to expect from various external factors (again discussed in Section 7.4 above) and therefore had adapted their methods and expectations accordingly. On the other hand, newer teachers with less experience at Park University were unfamiliar with their new positions and therefore tended to exert effort on adapting their preferred methods (acquired from previous teaching experiences) to the new context. These teachers were not likely to describe themselves as dissatisfied as they were still unsure to varying degrees whether any perceived shortcomings in their teaching were merely a result of inexperience at Park University or a more serious mismatch between themselves and the workplace. As teachers who were less satisfied gained more experience at Park University, they either adapted their methods to become more satisfied (at least in the general sense) or took steps to end their employment – disgruntled individuals notwithstanding.

Moreover, the fourth property, *experience*, refers more generally to the relationship between teachers' lifetime teaching experience and their satisfaction. Teachers with more overall career experience as teachers tended to be more satisfied than those with less experience. This may be related to two main factors: first, as teachers gained more experience, they learnt more about their chosen profession and whether their personalities and goals were compatible with the demands and rewards of the job. As stated above, those who were less satisfied as teachers were more likely to change professions or to take steps to adapt their methods, which improved their overall satisfaction. Second, Park University is one of the top universities in Seoul with a considerable reputation, and consequently the caliber of teachers (including qualifications and experience) resulted in a more professional faculty that represented individuals who had endured various other teaching situations and still remained committed. As a result, the majority of teachers in the study were satisfied with their positions (see Section 7.4.6 above).

The fifth property, *influence*, is closely aligned with self-efficacy in that teachers who were more influential in the workplace were likely to be more satisfied, while teachers with less influence tended to be less satisfied. Teachers who had more influence through more experience (both local and career), personality traits or other aspects such as expertise were able to adapt external factors (in varying degrees) to their needs, whereas less influential teachers had to adapt their methods more to meet external demands. While some teachers were more influential owing to greater experience, other teachers were able to exert influence even though they may have lacked experience. In other words, not all teachers with more experience were more influential and not all influential teachers were necessarily more experienced.

Teaching style is the sixth property, which suggests that teachers who were able to follow their own ideas more in their teaching were more satisfied than those who were more dependent on shared or group methods. As shown in Sections 8.4 and 8.5 above, part-time teachers tended to be more group-oriented and therefore shared relatively more than full-time instructors who were generally more independent. However, even for these part-timers who may have highly valued sharing, the ability to follow their own ideas was not limited by more sharing of materials and methods. Regardless of the degree of sharing, teachers still adapted the materials that they used to suit their classroom goals and overall teaching aims. Therefore, the more teachers were able to

do this, the more satisfaction they were likely to experience. One clear example involved the freshman courses taught by all instructors: both full-time and part-time teachers were likely to feel relatively less satisfied with these courses owing to the fact that they were more dependent on following more prescriptive curriculums and syllabuses which may have conflicted with their personal goals and aims in teaching.

The seventh property, *image*, as described in the previous three sections, affects not only the materials and methods that teachers used in the classroom (including the use of technology), but also their willingness and satisfaction in sharing with other teachers. This was largely a result of the performance-based nature of classroom teaching, which is reliant on the satisfaction of all shareholders both in and out of the classroom. Therefore, teachers who were more concerned with their image tended to be less satisfied, while those who were less concerned with image were relatively more satisfied. To reaffirm, teachers who were less concerned with how others viewed their manner and methods tended to be more personally satisfied owing to their focus on doing what they felt needed to be done in the classroom rather than on how their actions appeared to others. As discussed above in Section 8.3, this property is further complicated by the strong influence of student evaluations of teachers at Park University. Teachers who were more concerned with their image may have been so only as a consequence of the importance of evaluations, which could affect their future at Park University. These teachers could feel less satisfied even when making small compromises to their teaching and/or following more conservative methods owing to the evaluations.

The last three properties, *tech belief*, *tech knowledge*, and *Word use* all relate teacher satisfaction with the use of technology in the classroom. The first two of these properties, *tech belief* and *tech knowledge*, find that teachers who had less belief in the efficacy of technology and/or have less knowledge about its use tended to be more satisfied than those who knew more about technology and/or advocated its benefits for the classroom. As presented in the discussion of *tech satisfaction* in Section 8.5, teachers who used technology less in their teaching were more satisfied with the available technology; however, in terms of overall satisfaction, it is uncertain whether technology could directly affect teacher happiness. However, more 'satisfied' teachers who acknowledged that they used less technology in their teaching (and likewise had less

knowledge of and belief in its use) typically did not have any compunction about doing so. For them, technology had yet to demonstrate its benefits for education; therefore, they were content to follow methods that were more proven and comfortable – hence, more personally satisfying. Moreover, the final property, *Word use*, shows that teachers who used word processing programs such as Microsoft Word more often tended to be more satisfied than those who used them less. All teachers at Park University said that they made regular use of word processing programs (usually Microsoft Word) both personally and professionally. However, what is perhaps more unexpected is that several teachers who did not otherwise find value in using technology in the classroom attested to using writing programs from time to time for specific purposes such as lectures on essay writing. The impetus for this seemed to be the utility and ubiquity of writing programs in teachers' lives and its common use in teaching preparation. For the same reasons, a number of teachers also said that they engaged in frequent emailing, although many said they preferred other means such as direct conversations and/or cellular phone use. It may be therefore that teachers who used word processing programs and emailing more often experienced fewer problems in the classroom and in communicating with others and therefore were more satisfied overall. Interestingly, satisfaction with technology as it relates to all teachers did not appear to equate to overall satisfaction. This included not only those with low technology knowledge beliefs, but also more experienced teachers who held high expectations about the use of technology. As a case in point: several teachers who were among the most common users of technology in the classroom reported being unhappy with various aspects of the technology at Park University and yet also reported being satisfied with their jobs overall.

8.7 Position: Growing

As discussed above in Section 8.4, part-time and full-time teachers had different cultural backgrounds, work conditions and in many cases teaching beliefs. These differences played an important role in their attitudes and actions toward their professional goals and the means they employed to achieve them. Teachers who had more ambition had more motivation for achievement; however, having a definite need to grow could also certainly spur anyone to take steps to improve their situation regardless of their level of personal ambition. This category

addresses that need – be it intrinsic to the individual or generated by more shared circumstances. Teachers who felt this need to grow professionally were more likely to continue to improve their knowledge and qualifications as they worked toward achieving their career goals. To adapt a well-know and quite fitting proverb: "Necessity is the mother of growth". This category has fifteen properties including: "position", "growth", "new methods", "tech belief", "teamwork", "adoption", "alignment", "Korean education", "administration", "control", "turnover", "curriculum", "tech satisfaction", "website use", and "benefits" (Table 8.6).

Table 8.6
Fifteen Properties Related to the Position Category: Growing

Less contentment in position	**Properties** ⟷	**More contentment in position**
1. More part-time teachers	Position	More full-time teachers
2. More continuing professional growth	Growth	Less continuing professional growth
3. More belief in new teaching methods	New Methods	Less belief in new teaching methods
4. Less belief in technology use	Tech Belief	More belief in technology use
5. More willing to work in teams	Teamwork	Less willing to work in teams
6. Adopt more quickly as a group	Adoption	Adopt more quickly as individuals
7. More culturally-aligned	Alignment	Less culturally-aligned
8. More belief in Korean education system	Korean Education	Less belief in Korean education system
9. More satisfied with administration	Administration	Less satisfied with administration
10. Prefer more policies and departmental control	Control	Prefer fewer policies and less departmental control
11. More belief in systematic turnover	Turnover	Less belief in systematic turnover
12. Curriculum more consistent with beliefs	Curriculum	Curriculum less consistent with beliefs
13. More satisfied with technology /maintenance	Tech Satisfaction	Less satisfied with technology /maintenance
14. More department websites use	Website Use	Less department websites use

15. Less satisfied with salary and benefits	Benefits	More satisfied with salary and benefits

The first property, *position*, shows that full-time teachers were more likely to be content with their position at Park University than part-time teachers. This seems logical, as full-time teachers had more permanent positions based on contracts that guaranteed classes, pay and benefits such as vacations and semi-private offices. However, some full-time teachers may have felt less contented owing to other reasons such as their short-term (one or two-year) contracts based on what was perceived to be a somewhat ambiguous evaluation process. Likewise, some part-time teachers had taught at Park University for extended periods that in many cases exceeded full-time teachers' terms and therefore may have had higher degrees of contentment as a result. The second property, *growth*, finds that those who were less contented in their positions were more likely to be involved in professional growth activities, whereas teachers who were more content in position were less likely to engage in professional growth. By and large, part-time instructors professed to attend conferences and other learning opportunities considerably more frequently than full-time instructors, who typically admitted to doing so rarely. Specific factors were certainly at play (including time restrictions, which are explored in Section 8.9 below), but regardless of those factors those teachers who felt a need to improve (or, from the perspective of many of these teachers, maintain) their knowledge and qualifications also felt relatively less contented in their current positions than teachers who did not.

Similarly, *new methods*, the third property, states that those who had more belief in the efficacy of new teaching methods tended to be less contented in their position and vice-versa. In this context, *new methods* refers to methods, which were distinctly different from the methods that teachers were currently using and which may or may not have involved the use of technology. This property confirms intuition in that teachers who were more contented were more likely to be so by having gone through trial and error and to have chosen methods which were more suitable and fulfilling. Many of these teachers expressed interest in hearing details about new methods of teaching; however, more frequently than not, they did not end up employing them in their teaching. Conversely, the fourth property, *tech belief*, shows that teachers who were more contented in their position held relatively more belief in the efficacy of technology in education –

particularly for future use. On the other hand, teachers with less contentment expressed less belief in the efficacy of technology for teaching despite employing it more in their teaching. Evidence points to the most likely explanation for this disparity as being underpinned by differences between theory and practice. To use a popular expression which highlights the problems associated with those differences, the trouble occurred where 'the rubber meets the road'. Teachers in the study overwhelmingly held high opinions of the efficacy of technology in education in theory (particularly when asked about the future of education); however, when asked more directly about its practical use for specific purposes in their teaching at the time of the study, they were less enthusiastic. As discussed above in Section 8.5 on *tech satisfaction*, teachers who employed more technology in their teaching were more likely to perceive problems with its use than those who did not and as a result felt less satisfied with technology. Indeed, it is this distinction that underpins the "what works" substantive theory. Teachers were interested (to varying degrees) in ideas about the benefits of technology; however, in the final analysis, they employed it only if it consistently worked for them in the classroom.

The fifth property, *teamwork*, shows that teachers who were more willing to work in teams were less contented in their positions, while those who were more contented tended to be less willing to work in teams. This logically followed as teachers who were more independent might naturally be more contented to create and manage their own materials. The sixth property, *adoption*, is closely related, in that teachers who were less contented tended to adopt teaching methods as a group as opposed to more contented teachers who adopted more as individuals. Again, it seems intuitive that teachers who were happier with their own proven methods would adopt different measures as a result of their own thinking about what was needed or lacking in their own methods. Similarly in some ways, the seventh property, *alignment*, illustrates that teachers who were more aligned with Korean culture tended to be less contented than those who were less aligned with it. This difference at first appears to coincide directly with differences in status, for, as the part-time teachers were all Korean, they might be expected to be less contented owing to lower pay and benefits. However, through further analysis, it was evident that, regardless of status, teachers who shared more Korean values and actions tended to be less contented. The reasons for this, however, are more complex: it may be, for instance, that teachers who followed the dominant or expected methods did so grudgingly and only to satisfy external

demands, or perhaps those who were less aligned with Korean culture might have been, or considered themselves to be, out of the loop so to speak and therefore were able to follow their own desires with fewer perceived external demands. Although this was directly supported in the data, it may also in part be a reflection of status differences rather than contentment as a relation to teamwork.

The eighth property, *Korean education*, likewise shows that teachers who held higher opinions of the value of Korean English education as a system tended to be less contented in their positions, while those who found more fault with it were more likely to be more contented. Once more, as discussed above, the reasons for this may be found in the Confucian roots of Korean society. In this atmosphere, critical comments are valued less than shared opinions, and therefore it may be that those who said they hold a higher opinion of Korean English education were actually less willing to admit their feelings out of respect to authorities. In this regard, it is important to realize that, although teachers' opinions of the efficacy of Korean English education came from trained and experienced English language professionals, they were opinions nonetheless and therefore may not have reflected its true nature. Focusing in more, the ninth property, *administration*, parallels the eighth property in that teachers who felt more satisfied with the administration of Park University (including the General English Department) were more likely to be less contented in their position than those who were less satisfied. The tenth property, *control*, explains that teachers who desired more explicit rules and regulations in the workplace tended to be less contented than those who did not wish for more administrative controls. Teachers who were more contented may have been able to find suitable methods and means without more explicit rules or controls and therefore did not require them as much as less contented teachers who might not have figured out how to do so. Equally, the eleventh property, *turnover*, illustrates that teachers who were less contented in their positions held a higher opinion of systematic turnover than those who were more contented in their position. Specifically, this property refers to policies in the general English department at Park University which stipulated that the director and teaching assistant positions were temporary, two-year appointments regardless of abilities or successes (although some exceptions had been made from time to time regarding assistants). Teachers who were more contented tended to have taught longer in the department than those who were less contented and therefore arbitrary turnover was usually

viewed negatively, as it increased uncertainty which resulted in more work and less overall program consistency. The twelfth property, *curriculum*, finds that teachers who were less contented often valued the curriculum in the department more than teachers who were more contented in their positions. Any number of the reasons listed in the above properties may help to explain this property, but the fact that only full-time teachers were able to teach upper-level courses without shared curriculums may help to explain why they tended to be more contented and more critical of the shared curriculums.

The thirteenth property, *tech satisfaction*, like many of the above properties, may find its causes in Korean culture and Confucian principles. Teachers who were less contented in their positions were more likely to be happy with the provided classroom technologies and their level of maintenance than more contented teachers. On the surface, this seems somewhat counter-intuitive in that teachers who were less contented in their positions might also be expected to be less contented with the classroom technology because, as shown above, these teachers were also more likely to use the technology more frequently and therefore more likely to have encountered more problems with it. However, owing to more acceptance of the "AS" maintenance style (described above in Section 8.5) that is ubiquitous in Korea, and the higher value placed on harmony than critical opinion in Confucianism, less contented teachers may not have recognized or voiced certain problems such as inconsistent maintenance. Moreover, the fourteenth property, *website use*, finds that teachers who were less contented in their positions were more likely also to use the department websites more regularly than those who were more contented. It is reasonable from the findings to say that, like the thirteenth property, less contented teachers were more easily satisfied with the department websites (or at least less willing to complain about inconsistencies) and therefore tended to use them more frequently than more contented teachers who were less willing to hazard their use if they perceived problems. However, it may also have been that teachers who were less contented in their positions were by nature more willing to use technology and take other risks as these may have been perceived in some sense as avenues for advancement in their careers. By contrast, the final fifteenth property, *benefits*, involves a more direct relationship, in that teachers who were less contented in their positions were also more likely to be less contented with their benefits as one can lead to the other. Employment benefits are often one of the most important aspects of any position including teaching and therefore

perceived shortcomings in this regard may have directly resulted in less satisfaction in the job. It is also possible that being less contented with one's position (for reasons other than the benefits) may in some ways create a feeling of discontent toward the position's otherwise acceptable benefits. However, in any event, favorable benefits certainly can lead one to feel that his or her position is more desirable and worthwhile.

8.8 Bias: Living

This category covers the important but complex area of personality bias from which all teachers make decisions in their lives and work; it may be summed up in the short phrase: "I'm not going to change who I am". Although this area was not part of the original scope of the study and therefore inquiry was limited and incidental, it proved to be a significant aspect that may be explored in more depth in future studies (it is discussed below in Section 9.6). From the interviews and observations primarily, three general properties were able to be distinguished: "demands", "idiosyncrasies", and "sociability", which represent (respectively) the professed amount of busyness or demands in teachers' lives, unique aspects of their personalities, and how sociable they were and wished to be (Table 8.7). Owing to the complexity of this category, only one relationship could be established for the majority of teachers. This property, *demands*, reveals that teachers with more personal demands on their time from both externally- and internally-driven factors, tended to place more relative value on their lives as opposed to their work. On the other hand, teachers who professed fewer personal demands on their time seemed to shift their emphasis toward their work. This seems intuitive in that the relative need to prioritize increased proportionately with the number of personal demands. However, certain teachers' responses and actions did not directly support this relationship. For them, more personal demands often involved more work-related tasks. This still supports the property indirectly, nonetheless, as the ability for these teachers essentially to self-impose extra work demands reflects an overall valuing of job importance made possible only through less personal (non-work related) demands on their time. This issue of time is developed further in the next category; however, as it also directly relates to issues of job satisfaction and teacher burnout, it is considered more in Chapters Eight and Nine.

Table 8.7
Three Properties Related to the Bias Category: Living

More living importance	Properties ⟷	More job importance
1. More personal demands on time	Demands	Fewer personal demands on time
2. *Uncertain relationship*	Idiosyncrasies	*Uncertain relationship*
3. *Uncertain relationship*	Sociability	*Uncertain relationship*

The remaining two properties, *idiosyncrasies* and *sociability*, while present throughout the study, were more difficult to establish relationships for owing to the nature of their foundations. As discussed above in Section 7.1, where possible individual aspects of these two properties were identified and grouped accordingly under the teacher psychodynamics domain. However, in the end, there remained a tangible, more holistic or synergistic quality that was missing that seemed to underpin teacher decision making. Teachers' personalities could be dissected and analyzed; however, in the process, something tangible was lost – rather like studying an animal in a biology class by dissecting dead specimens preserved in formaldehyde. The first of these two properties, *Idiosyncrasies*, refers to unique characteristics of teachers' personalities. When asked why they had made a particular decision or had a particular preference despite apparently conflicting evidence or reason, teachers often simply replied that that was the way that they liked it without giving further explanation. Some teachers seemed to be more idiosyncratic than others; however, no apparently consistent relationships could be found beyond the fact that these idiosyncrasies had definite effects upon teacher decision making. The second property of this pair, *sociability*, was also behind many decisions that teachers made, but it was likewise impossible to discern any more detailed relationships beyond what has already been discussed above in Sections 7.3.8, 7.4.6 and 8.4. The general reasons underpinning teachers' levels of sociability were beyond the focus of this study but had tremendous influence on their interactions and methods in and out of the classroom and therefore were necessarily included here. Suggestions for areas of additional research in the conclusions in Chapter Nine explore further possibilities of this property.

8.9 Time: Investing

Teachers were concerned with time owing to limitations on both their in-class contact hours with students and the availability of out-of-class time for preparation and student feedback. Many teachers, therefore, emphasized the necessity of "Having priorities" which dictated how they organized their schedules. The nine properties which make up this category include: "priorities", "need", "efficiency", "effectiveness", "task delay", "re-use", "teaching focus, "test teaching", and "speaking activities" (Table 8.8). These properties range from basic organizational ideas through more refined attempts at improvement to the effects of time restrictions on classroom teaching. The first property, *priorities*, shows that, as teachers experienced more demands on their time, they also felt a greater need to prioritize how they used their time to meet current demands. Conversely, as demands on teachers' time decreased, they often had less concern about how their current time was spent. This seems to confirm general belief that, as people become busier, they sometimes cannot complete all of the tasks that they desire within a given time period and therefore must decide which tasks are most important to ensure that they are completed first. This property applies equally to professional and personal demands: as alluded to in the previous section, most teachers with more personal demands focused on matters in their personal lives, while teachers who had relatively fewer personal demands on their time sometimes self-imposed more professional demands on themselves. In either case, as demands increased, the need to organize them became more important.

Table 8.8
Nine Properties Related to the Time Category: Investing

More demands on time	Properties ⟷	Less demands on time
1. More need to prioritize	Priorities	Less need to prioritize
2. More concern with need	Need	Less concern with need
3. More efficiency importance	Efficiency	Less efficiency importance
4. More effectiveness importance	Effectiveness	Less effectiveness importance
5. More delay in completing tasks	Task Delay	Less delay in completing tasks
6. More importance on reusing materials	Re-use	Less importance on reusing materials
7. More focus on teaching basics	Teaching Focus	More balanced teaching focus
8. Teach more toward tests	Test Teaching	Teach less toward tests
9. Fewer speaking activities	Speaking Activities	More speaking activities

The second property, *need*, is closely related in that, as teachers experienced more demands on their time, they increasingly made decisions about whether they had a real need to complete a given task or not. On the other hand, as demands lessened, teachers had less concern in deciding the value of the tasks that they needed to carry out. This is an important distinction with regard to technology use: teachers who had more demands on their time tended to feel greater need to decide the efficacy of any new action they performed, leading to less willingness to take chances on unproven and/or unknown techniques. More specifically, the third and fourth properties of *efficiency* and *efficacy* show that, as teachers experienced more demands on their time, they increasingly became concerned with the tasks or techniques that they used or might use in order to maximize their time use. *Efficiency* expressly refers to concern that methods or techniques are the most logical and direct way to accomplish a task, while *effectiveness* involves the assessment of an action or task's ability to reach any short-term goal(s) or more long-term aim(s). As mentioned in the previous section, some teachers were more naturally deliberate about what they did, but regardless they too dwelled relatively more on these issues when more demands were placed on their time. The fifth property, *task delay*, involves a more obvious relationship in that, as teachers bore more demands on their time, they were more likely to take longer to complete tasks that were not viewed as priorities, whereas with less demand on their time came shorter

delays in accomplishing these same tasks. Personality can be seen as an intervening variable to this property: certain individuals were naturally less motivated to complete tasks than others. In the extreme, many of the lowest priorities were actually never completed, particularly by teachers whose personalities seemed to be less defined by diligence.

The sixth property, *re-use*, reveals the importance of being able to reuse materials and methods developed by the teacher. Teachers in Strand Four (post-observation interviews) frequently expressed their concern with the relative balance between investment and return on developing materials and techniques. This was particularly true when workplace and/or personal demands were mounting. As demands increased, teachers felt greater need to reuse materials than in situations where the demands on their time were perceived to be relatively fewer. Therefore, as the amount of work necessary for developing a new technique or method increased, there needed to be an equal or greater increase in value or period of use for the technique or method to be perceived as viable. That is to say, during periods of greater demand on teachers' time, they were less willing to put large amounts of time and energy into projects which were seen as 'one-offs'– materials or methods that for various reasons could be used only once. As revealed in Section 8.2, the ability to reuse materials and methods (fewer changes introduced) allowed teachers to maximize the efficiency and effectiveness of the materials and methods that they used (hence they involved more refined adaptations).

The final three properties in this category, *teaching focus*, *test teaching*, and *speaking activities*, all entail the consequences of heavy time demands on the materials and methods that teachers utilize (primarily in their freshman English classes). In the seventh property, *teaching focus*, as teachers' time demands increased (i.e., curriculum requirements or personal needs exceeded the available time), they increasingly focused more on covering the basic requirements for any given class. As with the first property in this category, when time demands became more pressing, teachers prioritized the needs in their teaching and out of necessity covered proportionately less, whereas situations where demands on teachers' time were perceived to be fewer allowed more secondary or refined goals to be met. The eighth property, *test teaching*, is an important facet of the seventh property, which shows that, as time demands increased, teachers tended to devote a higher percentage of their class time to teaching materials that would likely be tested on future

exams. By contrast, as time demands lessened, teachers were able to 'open up' their lessons to include materials and methods which did not necessarily relate directly to future tests. As competition for grades among students at Park University is perceived to be substantial, teachers were aware of the impact of teaching materials that would likely be tested on future exams and therefore usually viewed this as their top priority. The last property, *speaking activities*, likewise relates directly to the previous properties in that, as time demands increased, teachers tended to conduct fewer speaking activities in their lessons, while fewer time demands allowed teachers to have more of these activities in their lessons. The reason for this was that freshman English courses were decidedly biased toward developing reading and writing skills – by and large at the expense of speaking and listening skills. The syllabuses for both of these courses prescribed 60 per cent toward reading and writing, while only 10 per cent was devoted to speaking and listening. Therefore, as teachers felt more demand on their classroom time, they necessarily reduced the number of speaking activities in favor of covering the more highly-valued areas related to reading and writing.

8.10 Summary

Chapter Eight described the final domain, *what works*, through the eight categories which were organized around their respective processes: *adapting*, *controlling*, *sharing*, *relying*, *satisfying*, *growing*, *living*, and *investing*. The first category in Section 8.2 involving teaching practices centered on the necessity of *adapting* materials and methods in order to reach desired short-term and long-term goals. Eight properties, which affected the number and quality of teachers' adaptations were: *changes*, *refinement*, *teaching style*, *kinetics*, *risk taking*, *orientation*, *authenticity*, and *technology use*. The second category in Section 8.3 took into account the roles and responsibilities of classroom participants and focused on teachers' levels of classroom *controlling*. The need for teachers to conduct a certain order in the classroom through the establishment and maintenance of teacher and student roles and responsibilities was emphasized, although many variations on these were also evident. Section 8.4 on *sharing* explored eight properties that had direct or indirect bearing on the quality and quantity of interaction in the teacher community at Park University: *position*, *orientation*, *separation*, *dependence*, *style*

dependence, *image*, *training desire*, and *restrictions*. Generally, any measures that brought teachers together (owing either to physical considerations or to practice) tended to have a positive or building effect on the community. The next category, *relying*, in Section 8.5, revealed that teachers had to have faith or assurance that any technology they were employing or planed to employ would perform in the expected manner every time they called upon it; in other words, it had to be reliable. Or, equally, teachers had to possess confidence in their ability to handle situations that arose when that technology proved unreliable. Seventeen properties were found, which influenced teachers' willingness to use resources including: *tech orientation*, *tech training*, *practicality*, *authenticity*, *teaching style*, *teaching novelty*, *risk*, *image*, *learning bias*, *work ethic*, *tech workload*, *preparation*, *chalkboard use*, *satisfaction*, *maintenance*, *future tech use*, and *tech culture*.

Section 8.6 on *satisfying* handled properties and aspects related to teachers' need for satisfaction and feelings of self-efficacy, which was often a matter of doing what was satisfying both professionally and personally. However, owing to differences between competing interests, they could both vary according to the teacher's experience, personality, and position. Ten properties, which had influence on teacher satisfaction were: *self-efficacy*, *security*, *local experience*, *experience*, *influence*, *teaching style*, *image*, *tech belief*, *tech knowledge*, and *Word use*. Further, Section 8.7 addressed issues of *growing* and showed that differences in teachers' positions played an important role in their attitudes and actions toward their professional goals and the means by which they achieved them. Ambition, as expected, was involved in this category, but having a definite need to grow was found to be a spur to any individuals to take steps to improve their situation regardless of their levels of personal ambition. This category had fifteen properties including: *position*, *growth*, *new methods*, *tech belief*, *teamwork*, *adoption*, *alignment*, *Korean education*, *administration*, *control*, *turnover*, *curriculum*, *tech satisfaction*, *website use*, and *benefits*. Next, Section 8.8 discussed the complex area of *living* and the difficulty of exploring aspects related to teachers' personalities. Although this category was seen as underpinning teacher decision making, owing to its complex nature and the necessarily limited scope of the study, only three properties were developed: *demands*, *idiosyncrasies*, and *sociability*. These properties represented (respectively) the professed amount of busyness or the number of demands in teachers' lives, unique aspects of their personalities and how social they were and

wished to be. Finally, Section 8.9 elucidated teachers' *investing* in terms of the time and effort they were willing to expend on improving various aspects of their teaching. The nine properties which made up this category included: *priorities*, *need*, *efficiency*, *effectiveness*, *task delay*, *re-use*, *teaching focus*, *test teaching*, and *speaking activities*. These properties ranged from basic organizational ideas through more refined attempts at improvement to the effects of time restrictions on classroom teaching.

This concludes the summary of Chapter Eight. In the next chapter, five different perspectives are employed to help flesh out the substantive theory outlined above. These portrayals represent the unique perspectives of the five teachers who took part in Strands Three and Four of the study (classroom observations and follow-up interviews).

Chapter Nine: Teacher Perspectives on the Theory Processes

9.1 Introduction

Chapters Seven and Eight detailed the substantive theory in three main domains. The first two domains – teacher psychodynamics; and administration, infrastructure, student variables, and teacher community – provided background to the third domain that underpinned the substantive theory. The theory, "what works", included eight categories in the form of processes*: adapting*, *controlling*, *sharing*, *relying*, *satisfying*, *growing*, *living*, and *investing*. In this chapter, these eight categories are applied to each of five teachers' cases in order to explore facets of the theory as they relate to individual teachers. The five teacher depictions presented below are based on an amalgamation of information from the initial interviews and survey questionnaires (Strands 1 and 2) together with classroom observations and follow-up interviews (Strands 3 and 4). They are ordered according to the teacher's current level of use of technology both in the classroom and externally at the time of the study. However, these teachers' opinions and methods should not be seen as static positions but rather as evolving perspectives from semester to semester and from year to year. Therefore an epilogue for each case is included to address aspects of teachers' positions which do not match the theory or which may have changed over the course of the study. The chapter concludes with a comparison of the teachers' perspectives as they directly relate to their potential for technology use in the classroom at Park University.

9.2 Tina's Case

Tina is a full-time Korean-American instructor who had taught for over five years in Korea and the United States at the time of the study. She came from a background in science and engineering and so had specific training in related technologies. Although she used technology extensively in her personal life, she professed skepticism about its use for the classroom, describing herself as a "traditionalist" when it came to education (SSI#6). She did, however,

employ the Park University website out of class to provide handouts that students printed out weekly for classroom activities. Based on her experiences as a graduate student, she preferred to conduct classes without the use of visuals, including chalkboards, computers or other classroom technologies. Instead, she preferred to speak directly to students and have them take notes or use handouts for classroom activities. Tina felt that the oral tradition of learning was more beneficial for students to learn a second language given their proficiency in reading. Moreover, she stressed that teaching English to students in Korea involved more than simply studying texts and vocabulary or learning English skills. Korean students, in her opinion, often lacked critical thinking and organizational skills owing to Korean education's overemphasis on memorization and so benefited from lessons which encouraged the development of these skills. One such technique that she employed – not providing quick answers to student questions – promoted students to find their own solutions, but often also frustrated them because it contradicted the "passive" style of learning that they were comfortable with (Tina, SSI#6). Further, Tina believed in the use of pair and group work as well as the need to foster individual students' learning styles, but found this difficult owing to large class sizes. Specific aspects of Tina's teaching beliefs and practice are considered below as they apply to each of the eight categories of the theory.

9.2.1 Adapting

Tina had strong concern about practicality and authenticity in her teaching materials (strongly agreeing on the survey questionnaire with the need for lessons to match real life experiences) and demonstrated a great deal of independence in the methods which she used, including "my conversation exams – like other people I do pair conversation exams but I give them a group grade – the same grade" (SSI#6). She also was not very happy with the curriculum and prescribed materials and, as a result, often made adaptations to these which helped her to teach more critical-thinking and organizational skills. However, she described herself as a "traditionalist" who did not see a direct need for technology use in the classroom. Moreover, her less active personality combined with more risk aversion in terms of willingness to try methods which were non-traditional led her to perform fewer adaptations which required more effort. Overall, this category predicted that Tina would tend to make more adaptations in her teaching

with two important caveats – she was less likely to make adaptations which were more non-traditional or which required more effort to complete.

9.2.2 Controlling

Tina displayed a bias toward more teacher-centered instruction, although she often employed many pair and, on occasion, group activities. She was concerned about always keeping the focus of lessons in order to maintain control of the classroom (based on how her professors had conducted their classes when she had been a student). She felt this was necessary as many students were not very independent, were unmotivated or lacked a solid framework of critical thinking skills. She avoided activities in the classroom which were "disruptive" or caused "too much ruckus" such as having students intermingle or move desks in order to have better access (Tina, POI, #4). She did, equally, express a concern with large class sizes and desired more pair and group work which emphasized students taking more responsibility for their learning such as seeking answers from peers rather than expecting them exclusively from the teacher. Teaching image was of personal concern to Tina, although owing to her independent nature she did not often let it interfere with the methods which she employed in the classroom. In summary, this category predicted Tina's tendency toward more control in the classroom. However, as expressed by a number of teachers during the initial interviews, her classroom practice did not exactly match her ideals owing to hindrances from large class sizes and other prescribed elements of the curriculum.

9.2.3 Sharing

As a full-time instructor, Tina did not tend to share as much as most part-time instructors owing to physical separation and a higher degree of independence. She was also not well-aligned with Korean educational standards in terms of her teaching beliefs and methods. She was, however, highly social among her full-time colleagues but like many (including part-time instructors) the mainstay of materials and methods sharing that she engaged in was as a necessity for freshmen classes with prescribed curriculums. For Tina, it seemed that the biggest impediments to sharing were her independent beliefs and methods which downplayed the necessity to seek classroom

techniques or materials from other teachers. Like many of her more experienced colleagues with years of teaching experience, Tina had honed her teaching decisions and methods to such a degree as to rely little on outside help. In conclusion, this category predicted Tina would have a lower level of sharing; however, this category perhaps undervalued contextual factors and teaching experience which predisposed Tina's actions in this area.

9.2.4 Relying

Tina had considerable training and involvement with technology in her personal life but was not on the whole oriented toward its use in the classroom. This was more surprising given her high level of independence and desire to teach with more practical and authentic materials. More consistent with this category's third area of properties was her approach to teaching as a traditionalist who was less willing to employ techniques which relied on supporting or peripheral resources. Moreover, and like many teachers interviewed, Tina was less tolerant of the increased workload necessary to prepare and adapt materials which relied on technology both in and out of the classroom. She did employ the Park University website habitually, but only for one particular use which lessened her workload and which was consistent with a department policy change toward strict monitoring of teachers' use of photocopying. The final fifth area of properties was also consistent with Tina's lower level of technology use with two important distinctions. The first was her low level of chalkboard use which counter to expectation did not result in more technology use. The second was her belief in the importance of technology use in education in the future, including her self-professed likelihood of use. According to the theory, teachers who recognized that they were likely to use technology in the classroom in the future (including teaching classes online) were also more likely to be willing to rely on it now – but this was not the case with Tina. One possible clue to help explain this discrepancy might be found in Tina's perception of a lack of expectation to use technology from both students and the administration. By and large, this category predicted Tina's lower willingness to employ technology in her teaching but was confounded by the importance she assigned to authenticity, her lack of chalkboard use, and her self-professed likelihood of future technology use, including online teaching.

9.2.5 Satisfying

Tina did not believe that freshmen students were particularly motivated to study English as they were likely to be exhausted from the university entrance exam process and more interested in social concerns and their major courses of study. Given the combination of curriculum restrictions and the inherent limitations of Korean education, Tina had lower levels of self-efficacy in teaching these courses and less general job satisfaction. Likewise, the rigorous requirements, magnitude of student evaluations of teachers and the perceived ambiguity in the rehire process resulted in fewer feelings of job security for most full-time instructors, including Tina. Further, given the considerable experience of the full-time faculty (see Section 5.5.1), Tina ranked below average in both local and career teaching experience. However, Tina had a higher level of independence and an average amount of influence which according to this category would indicate slightly more general job satisfaction. Lastly, Tina's lower levels of both belief in and use of technology in the classroom would also point to more satisfaction with classroom technology (but, as discussed above and in Section 8.6, does not necessarily relate to general job satisfaction). Therefore this category predicted that Tina would have slightly more general job satisfaction than the average full-time instructor. However, certain properties which seemed intuitively to be missing from this category including salary, benefits, and work atmosphere may have had an unmeasured negative impact on her perceptions in this area. Nevertheless, as commonplace as these properties might be in relation to job satisfaction, they were not grounded in the data of the study, and, if included, would equate to the "ought" categories (mentioned above in Section 6.3) that Glaser & Strauss (1967) cautioned against.

9.2.6 Growing

Tina believed that professional growth was important but admitted that she did not keep up with new methods or attend learning opportunities such as conferences and workshops. This case was common among full-time teachers who often cited the lack of time as part of the reason: as Tina relayed in the initial interview, "I'm sure like everyone else here who has taught at other universities can tell you, 12 hours at Park University is like teaching 24 hours elsewhere"

(SSI#6). Tina also felt that Korean education and department policies were not very consistent with her goals as a teacher. As mentioned in Section 9.2.2, she believed that Korean education was heavily biased toward memorization and so largely failed to teach critical thinking skills to students. In the English department at Park University, she felt that shared freshmen courses could have been better designed including curriculums and textbook choices. Moreover, she considered some policies such as systematic turnover to be disruptive to the consistency of the department. Finally, she was contented with the salary and benefits at Park University, but felt pressure to perform well as a teacher given the somewhat ambiguous rehiring process and the importance of fickle student evaluations. Overall, this category predicted that Tina would be among teachers who were more contented in their position at Park University. As a full-time instructor, her critical stance toward Korean education was also expected, as was her general approval of her salary and benefits. However, as her level of contentment seemed less than enthusiastic, perhaps this category is lacking accuracy (as stated in Section 9.2.5) or properties which could help explain the reason(s). Future studies could help to resolve this situation (as is discussed below in Section 9.8).

9.2.7 Living

Tina, like the majority of full-time teachers at Park University, was very hard working. In interviews, it was clear that she regularly took on extra work and responsibilities beyond the requirements of the job – presumably at the expense of her personal life. Also, owing to her personality and unique qualifications, she was at times asked to perform special duties outside the general English department or to head extra committees within it. Tina was also a fairly sociable person and interacted well with the full-time and part-time faculty, director, and assistants. In short, this category would generally predict that on average Tina probably placed at least equal importance on her job as her personal life though probably more on the former. The significance of this prediction is discussed below in the general conclusions in Section 8.8.

9.2.8 Investing

Owing to the complexity and importance of this category, discussion here may best be thought of and clarified by answering three main questions: Why did teachers need to consider the demands on their time?; How did teachers manage the demands on their time?; and What were the effects of having more demands on teachers' time? Answering the first question requires not only consideration of the need to prioritize but also deliberation about whether a particular demand truly needed to be fulfilled. Teachers who had more demands on their time naturally had more need to prioritize their time than those with fewer demands. Likewise, as they experienced more demands, they were likely to be more critical about which demands they could justifiably delay completing or forget altogether. This relates directly to answering the second question on how teachers managed the demands on their time. Teachers who had more demands on their time would necessarily have a basic desire or acquired tendency to be more efficient and effective. That is, teachers who did a task more efficiently did it more quickly and thus had more time for completing other tasks, while a task done more effectively would mean that teachers would be less likely to have to go back and correct any problems which would similarly lead to more future time for completing other tasks. Similarly, an important aspect of these properties was the ability of teachers to reuse materials and thus make improvements in both efficiency and effectiveness. Answering the final question on the effects of more demands on teachers' time involved a consideration of the content of teachers' lesson materials and activities. As demands increased, teachers tended to focus more on teaching the basic requirements of the lesson, which often meant eliminating speaking activities in order to spend more time on test preparation.

As concluded in the previous section, Tina seemed to have more than an average amount of work-related demands on her time and so could be expected to have more need to prioritize her time. Likewise, this would give the impression that issues of efficiency and effectiveness would also be more important to her. Further, Tina, like all teachers in the department, had a challenging amount of content to cover in most of her classes. It did not appear though that she put any additional demands on her classroom time by imposing extra activities or other special tasks. Thus, she could not be expected to be pressured more in her lessons than other teachers in similar circumstances. In summary, this category predicted that Tina would have a higher than

normal need to prioritize owing to her relatively demanding schedule. Once again, this conclusion is perplexing as Tina was willing to employ more technology in her personal life and class preparation but was less willing to do so in the classroom. It could be that Tina did not feel pressure to improve her use of class time by employing technology or that she did not believe that technology would have made an improvement in this regard – or both.

9.2.9 Epilogue on Tina's Case

Two years have passed since Tina took part in the study. In that time, as might be expected, her opinions on certain aspects had changed significantly, while others had remained the same (based on a recent self-review of her original responses). For instance, adapting materials and methods for the classroom was still an important part of Tina's teaching and preparation. Though she described herself as a traditionalist, this in no way meant that she preferred to teach traditional materials. On the contrary, she showed a higher level of concern for the use of authentic and practical materials than many other full-time instructors. It was her approach and method of conducting lessons which made up the traditional aspects of her teaching. However, there is reason to believe that this facet of Tina's approach may have changed. As a traditionalist, she used very little technology in her classroom, instead preferring to follow more conservative methods of teacher-centered activities, interspersed with pair and occasionally, group work. As noted in Section 9.2.4, this was unexpected given that she had considerable training and involvement with technology in her personal life as well as a desire for the use of more practical and authentic materials. Therefore, more consistent with the theory, Tina more recently believed that technology might be valuable to use in the classroom for a number of reasons. First, she now calls attention to the physical benefits of using word processing document files for materials which need to be re-presented in multiple classes with the same lessons. Second, owing to the improved technology setup in the new classrooms, she was more comfortable with relying on it. She felt that the new setup (with computers on free-standing podiums rather than embedded inside bulky desks requiring teachers to sit down to use) allowed her to have better "visibility" and "connect" with students while using computers (personal communication, August 12, 2010). Third, she felt she had always been willing to rely on multimedia in the classroom but, owing to changes in constitution, only now was willing to use word processing documents or PowerPoint

slides. Although she preferred to have students rely on verbal understanding alone during lessons (just as she had done while learning), she now felt it was necessary to expedite understanding by providing visual support in explanation rather than having to repeat through greater effort. Fourth, Tina recently had to begin teaching lower level students who had more difficulty in understanding spoken English and so she felt that the visual word processing document would be more efficient and effective in teaching these students. Interestingly, on the survey questionnaire, Tina (and a slight majority of full-time instructors – 57.1%) believed that computers were more suitable for upper-level classes such as English III or English IV. From the theory, this is parallel with the increased dissatisfaction that is associated with more technology use. That is to say, teachers have general beliefs about technology use in the classroom (including satisfaction with provided resources) but often these beliefs change somewhat or are even reversed once experience in use is gained in the classroom. In summary, Tina is now willing to rely on technology in the classroom such as word processing documents and PowerPoint slides owing mostly to personal necessity and the improved efficiency and effectiveness of doing so.

9.3 Amy's Case

Amy is a Korean full-time instructor who had taught for 15 years in Korea at the time of the study, including three years as a part-time instructor and five and a half years as a full-time instructor at Park University. She studied English literature and originally wanted to be an interpreter before settling into her career as an English language instructor. Despite having had some technology training later in her teaching positions, she was "very tense" at first about using computers because she was not (and is not) "a technologically-oriented kind of person" (Amy, SSI#10). Amy took a long time to learn basic functions on computers such as sending emails, but, owing to necessities such as having to teach students how to use the Internet for a required 20-page research paper, she was able to teach herself certain skills like website navigation and Internet research techniques. She employed the Park University website frequently to email students and provide information and workspaces for group projects. However, only from time to time did she use the technology in the classroom for specific purposes such as demonstrating the availability of class documents online or showing short video clips. Amy had all her classes

organized into groups which she felt facilitated learning and encouraged more hesitant students to answer questions posed to the entire class. Owing to a public school education in Korea (before studying abroad), Amy said that she could empathize with her students who were often conditioned to be passive and could have difficulty "generating original ideas" (POI #3). She thought that Korean society put too much pressure on the study of English, which contributed to her students' difficulty in learning it. Specific aspects of Amy's teaching beliefs and practice are detailed below as they applied to each of the eight categories of the theory.

9.3.1 Adapting

Amy tended to be somewhat less independent and active and more risk averse in the classroom than other teachers. However, she showed more than average concern for authenticity and tried to customize lessons as much as the "rushed…hectic class" curriculum allowed for (POI # 3). Moreover, she did employ technology in her teaching but mostly as an out-of-class supplement as she did not feel the class technology was reliable. Overall, this category predicted that Amy would lean toward fewer adaptations in her teaching.

9.3.2 Controlling

Amy tended to blend both teacher-centered and student-centered techniques in her teaching such as whole class questioning and group work. Further, her classroom behavior and explicit opinions during the study showed that she was reasonably aligned with Korean educational methods. She was also concerned with her teaching image, especially as it applied to the rehiring process. Amy liked to have firm control of activities in the classroom and demonstrated an aversion to the occurrence of any unexpected events. She did not seem to be concerned with larger class sizes (perhaps owing to her habitual use of group work), but did show unease with the crowdedness caused by too many desks in the classroom. Conversely, she did take measures to customize lessons whenever possible but, owing to her perception of an over-crowded syllabus with "too many components", she tended to focus her lessons on first covering test-related materials (POI #3). Moreover, she said that during lessons she "watches the clock a lot" and "gets anxious a lot" when she felt that she was not in control of the class (POI #3). In

summary, Amy was fairly centered in her teaching opinions and approach, but did lean toward more control in the classroom in practice.

9.3.3 Sharing

Amy's position as a full-time instructor suggested separation from the part-time faculty, but owing to her previous teaching experience (which included some part-time employment) she tended to embody elements from both groups. Further, as mentioned above, she was reasonably well-aligned with Korean culture and did not lean toward a high degree of independence in her methods and approach to teaching. Finally, as a full-time instructor, Amy was also separated into a semi-private office which hindered her exchanges with other teachers. In conclusion, this category predicted that Amy would engage in more sharing than the average full-time instructor. This prediction was also corroborated through Amy's consistent lamenting about the low level of sharing among the full-time faculty, including vocal support for more training opportunities in the department.

9.3.4 Relying

In terms of involvement with technology, Amy did not feel that she was technology oriented, but had received infrequent training from her workplaces along with occasional self-study needed for particular purposes. As mentioned above, she also showed concern for using authentic materials, though her lessons were not always geared toward more practical elements (despite a desire to the contrary). Amy was somewhat willing to experiment in her own learning, but overall, owing to risk aversion and being somewhat conservative nature in the classroom, she was not willing to experiment with her classroom techniques. More specifically, like many other full-time instructors, she showed resistance to new techniques and approaches which would increase her already busy schedule. In this regard, Amy had gained enough experience in using technology at various times in her teaching to experience problems related to inconsistencies in the technology such as issues with poor maintenance. Perhaps somewhat surprisingly, she believed not only in an increasingly technological educational system in the future, but also that it would largely be beneficial to education. Overall, this category predicted that Amy would be slightly less willing

to rely on technology than other teachers. However, her position would likely be more sympathetic if contextual factors such as reduced workloads and better technological support were provided.

9.3.5 Satisfying

Amy had a reasonable level of confidence as she believed her approach and methods had high potential for success, but at the same time she felt less secure in her position. Moreover, she had witnessed events such as a mass firing of teachers at a previous school and was uncertain about the fairness of the rehiring process at Park University. This was mainly owing to negative factors such as systematic turnover in the administration which hindered overall consistency and teachers' ability to predict future decisions. Amy had considerable teaching experience both locally and in her career, even considering the high level of both in the department. She also enjoyed a respectable level of influence in the department, though she continued to worry about her teaching image. Further, she had solid belief in technology in education and had acquired a fair bit of knowledge in its use. However, she still felt that she knew less than most of her students, perhaps owing to her humble nature and low level of technology use in her personal life. In short, this category predicted that Amy would have an average level of satisfaction in her job, mainly as a result of the balance between her considerable experience and other mitigating factors such as a perceived lack of job security.

9.3.6 Growing

Amy, with experience both as a full-time and as a part-time instructor in addition to having both a Korean and a Western educational background, had diverse opinions and a unique approach in this area. Unlike most other full-time instructors, she regularly took part in teacher training events such as conferences, but like them she did not usually find the time to stay up to date on new teaching techniques. She was also more adamant than most full-timer teachers about the desire for more training in the department (including computer training). Moreover, her beliefs largely in support of Korean education were more aligned with those of part-time teachers, but unlike them she worried about administrative decisions, largely owing to systematic turnover

which she believed hampered consistency. As a possible solution, she suggested designating a teacher-coordinator from amongst the full-time faculty who had more firsthand knowledge to base decisions upon. Lastly, she was happy with the salary and benefits but less satisfied with the classroom technology and maintenance. However, she usually employed the department websites in a manner more consistent with part-time instructors. In conclusion, Amy had a wide array of opinions which influenced her perceived level of contentment. The balance of these opinions seemed to point to less contentment in her position, though ultimately the judgment would need to assess more accurately the relative levels of her property values to be sound.

9.3.7 Living

From the data, it appeared that Amy devoted an almost equal amount of time to personal and professional matters. At no point during the study did Amy appear to be any busier than the average full-time instructor, although as already mentioned full-time instructors as a group did bear a significant amount of work. In terms of idiosyncrasies, Amy, like many of her colleagues, enjoyed amicable relationships with most of the staff and faculty which would not hinder her involvement in the workplace. In the final analysis, this category predicted that Amy placed slightly more importance on her professional life owing to the nature of her position as a full-time instructor in the department.

9.3.8 Investing

Three questions in Section 9.2.8 helped to organize thinking in this category. The first question asked teachers: Why did you need to consider the demands on your time? This category predicted that Amy, as a full-time instructor, might simply reply that it was necessary as there were too many tasks to complete in and out of the classroom and so any thoughts on the matter would be beneficial. The second question asked how teachers managed the demands on their time and would similarly ask Amy to describe the manner and frequency with which she tried to improve her use of time. This category predicted that Amy might not have considered the matter too deeply as she had established a routine that worked for her and did not require further thought. The final question asked teachers about the effects of having more demands on their

time, if any. Amy's predicted response might include that she realized the advantages of reusing materials and so preferred reusable lessons and materials. She might also add that it was sometimes necessary to focus on the priorities in class, which included materials likely to be covered on subsequent exams (even if it meant less time for lesser priorities such as speaking activities). In summary, this category predicted that Amy, by having fairly equal levels of personal and professional demands on her time, would not tend to be overly concerned with how she invested her time owing to adjustments in her teaching such as prioritizing activities and employing reusable lessons and materials.

9.3.9 Epilogue on Amy's Case

In the nearly three years since Amy took part in the study, little has changed with regard to her position and opinions as reported above. However, after review, it was clear that Amy's view of the information in two related aspects of the categories *Satisfying* and *Growing* varied from what was presented. In Section 9.3.5, the theory predicted that she would have an average level of satisfaction, but this seemed not to be the case. Amy now reported that she was quite satisfied with her job at Park University. The cause of this discrepancy could be that, during the study, mainly critical aspects were discussed without giving equal weight to more positive factors that would tend to buoy her opinion. Alternatively, in the theory all properties were weighted evenly and so Amy's concern about the security of her job and related image was valued the same as her local and career teaching experience. However, it may be that the latter two properties should have significantly higher value than the former property. Similarly, in the subsequent category (Section 9.3.6) dimensions related to the fifteen properties for Amy pointed to less contentment in her position. Yet Amy also later expressed that she was quite content in her position as a full-time instructor. Three likely explanations which involve the accuracy of the properties could help justify this inconsistency. First, the problem could be the relative weighting of the properties as indicated above or alternatively the theory could be ill-equipped to measure accurately the participants' dimensional position for each of the properties in the category. That is, the theory does not include provisions which can pinpoint the exact degree of support participants have for each property in a category. Finally, as the study had time and scope limitations, the relative inconclusiveness of the data could be at fault. As discussed in various sections above, the

properties of each of these categories, while covering a wide range of topics, could not be considered extensive or in any way complete and so inaccuracies on this scale would not be entirely unexpected.

9.4 Craig's Case

Craig had been a teacher for less than five years at the time of the study, including one and a half years as a full-time instructor at Park University. His education and training were in information technology which he had used to work as a website designer before deciding to become a teacher. He also held a prominent second language teaching certificate which underpinned his communicative language teaching philosophy. Craig was very interested in "maximizing [his] organizational potential" (SSI#2) and so often sought to improve his methods both in and out of the classroom. Therefore he employed technology (websites) extensively as an out of class supplement to aid not only pedagogy but also the organizing and grading of students. This was an important consideration as he felt that students tended to be grade-obsessed, which put more pressure on teachers to be accurate and objective in assessing their efforts. However, Craig was dubious about the potential for technology use in the classroom mainly owing to his lack of need and its perceived unreliability. Additionally, although he liked the "beauty of having computers in every class" (to demonstrate the use of online resources), he felt that PowerPoint presentations and alike tended to be too businesslike, so he relied on handouts or simple oral discussions with students during most of his lessons. These methods were also more consistent with his teacher-training principles and thus more comfortable. Craig was a very social person who preferred to ask for help when confronted with problems that he could not immediately solve. He also liked to keep a very positive outlook on life and therefore stressed the importance of trying to view problems optimistically whenever possible.

9.4.1 Adapting

Craig was a relatively independent and active teacher in the classroom. He was also willing to try new methods that helped his classroom pedagogy or improved the manner or methods that he employed. He especially worked to improve the authenticity of his teaching by adding real life

(usual personal) examples in explanation of difficult or confusing concepts in the required materials. Likewise, he preferred teaching materials and activities which enabled more practical application out of the classroom. He stressed close professional relationships with students in order to help bridge the gap between the classroom and students' lives. Craig did not employ a lot of technology in the classroom but, owing to more extensive use of websites and other online resources such as forums, would need to effect relatively more adaptations in his teaching. In summary, this category predicted that Craig would make more adaptations than the average full-time instructor.

9.4.2 Controlling

Craig followed a communicative style of teaching in the classroom which included regular group work in addition to more teacher-fronted portions of his lessons. He often found that students were less willing to answer questions in front of the class and so depended on worksheets which students usually had to complete before the start of every lesson. He liked his classes to be talkative and noisy, but found it necessary to use the classroom microphone at times when students did not pay attention. He liked to sit with student groups and "become part of the conversation experience" (POI#2) which he felt also helped him to reduce the amount of Korean that students spoke in the classroom. Likewise, he was concerned that "things [could] go horribly wrong" (POI#2) without close monitoring which helped keep students on task. Craig paid close attention to administrative matters, was mindful of his teaching image and held general support for most department policies. However, he was more prone to taking risks and showed more concern for large class sizes and overcrowded classrooms. Overall, this category predicted that Craig would lean toward more control of his classroom than might be expected given his communicative-based approach.

9.4.3 Sharing

Like most full-time instructors, Craig did not share as much as part-time teachers owing to his office situation and working hours. However, he was highly social and his teaching practices (though not necessarily beliefs) were not drastically different than those shared by Korean part-

time faculty. He also had higher image concern which tipped his materials use further toward department standards, but he did not have a strong desire for department training. Therefore this category predicted that Craig would engage in an average amount of sharing, though he expressed more positive opinions and desire.

9.4.4 Relying

Craig's academic background in information technology combined with his work experience as a webpage designer would clearly favor more willingness to rely on technology in his teaching. He also used computers frequently in his personal life, including considerable interest in online gaming and social networking in his free time. Moreover, he showed concern for the use of authentic and practical materials in his teaching, which was somewhat independent in nature. Craig was willing to try new techniques in his teaching, including those which other teachers might find somewhat risky or intensive. For instance, he employed online forums as part of his participation grades in addition to supplementary use of the department website. However, he displayed a fair amount of teacher image concern while not actively pursuing advancement in his personal learning and credentials. He also was somewhat averse to the increased workload associated with technology use in the classroom, including preparation. He was satisfied with both the classroom technology and the maintenance level (given his relatively low use). Finally, although he did not employ technology regularly in his lessons, he realized the likelihood that he would do so in the future. In conclusion, this category predicted that Craig would be willing to employ technology more than his current level of use in the classroom. However, his high level of out-of-class use was more in-line with his position on most of this category's properties (particularly technology orientation and training).

9.4.5 Satisfying

Craig had a reasonable amount of self-efficacy and feelings of job security. On the other hand, his relatively shorter teaching experience – both locally and career-wise– held equal sway. Also as a relatively new teacher, he did not have particular influence in the Department and followed a teaching style which was not one of the most independent in the Department. Further, his

somewhat elevated sense of teacher image influenced his opinions and methods toward group standards. Counter-intuitively, he had only a measured amount of belief in technology in education (mainly as a supplement), despite his extensive technical knowledge and training in this area. Moreover, he did not employ word processing programs more than most teachers, instead preferring to use them for class supplements and preparation. Therefore this category predicted that Craig would have less general job satisfaction than average owing mostly to his atypical levels of teaching experience and technology training.

9.4.6 Growing

Full-time teachers such as Craig enjoyed excellent work conditions, including independent work schedules, semi-private offices and two long vacations each year. However, they also worked long hours in preparation of classroom materials and marking of student homework assignments, including paragraph and essay writing. This effort left Craig with little time for career development opportunities outside work. Further, he had a belief in the efficacy of new teaching methods, but less belief in technology use in the classroom. He liked to work in teams and supported many of the department policies (including the curriculum design) enough to want more of them to aid consistency in the department. However, he felt that systematic turnover in the Department was detrimental in this regard. Craig used department websites frequently and, given his lower level of use, was satisfied with the classroom technology and maintenance. He was also satisfied with the salary and benefits of his position. In summary, this category would predict that Craig would be among teachers who were more content in their positions at Park University.

9.4.7 Living

Craig had a fairly balanced level of personal and professional demands on his time. However, owing to the demands of teaching at Park University, he probably tended to devote slightly more time to his work than his personal life. To elaborate on this point: an important aspect of this property is the contrasting schedules that teachers followed during the school semesters and vacation periods. During school semesters, teachers taught 12 hours of classes a week, but with

preparation included probably spent closer to 30 to 40 hours. However, teachers could be even busier during writing assessment or test-writing periods. Suffice to say, during semesters, teachers' work demands were necessarily much higher than their personal demands. On the other hand, during vacation periods teachers did enjoy more personal time. However, owing to a department requirement, they also had to perform teaching duties during at least one of the vacation periods. Moreover, course development and other committee work were necessarily completed during vacation periods, which tended to minimize teachers' vacation time further. In short, full-time teachers at Park University on average felt more demands on their time from their jobs than from their personal lives. Therefore this category predicted that Craig, like other teachers, would necessarily have more job importance, predominantly during school semesters.

9.4.8 Investing

Craig did not need to consider the management of his time any more than other teachers. That is to say, he was necessarily busy and needed to organize his time well, but this situation was the same for most full-time teachers in the Department. However, Craig was highly interested in maximizing his time and so was concerned with the efficiency and effectiveness of his teaching. He also took steps to prioritize the activities and content of his lessons to be certain that he covered not only exam materials but also fundamentals that were lacking in students' participation. At times, this meant that he had to reorganize or leave out some activities that he may have wanted to include and which would have furthered students' practical ability to speak in English. Therefore, on the whole, Craig was a fairly busy teacher who devoted some effort in organizing and maximizing his use of time.

9.4.9 Epilogue on Craig's Case

At the start of the study, the general English department was located in a building which had traditional, opaque walls throughout the interior. Classrooms there afforded the usual amount of privacy and soundproofing effectively to isolate classes once lessons had begun. Teachers' offices were similarly isolated and located on two floors of the building somewhat distant from the classrooms. However, during the study the Department was relocated to a new building with

a very different interior (as mentioned in Section 8.4). Owing to glass walls on both the classrooms and teacher offices, teachers were now able to see what other teachers were doing before, during and after teaching their classes. Further, classrooms and offices were all aligned on one floor together. These changes had numerous effects upon the faculty, including Craig. He believed the new clear walls in the classroom were helpful to see other teachers' lessons, but also added "pressure to use technology equally with other teachers" (POI#2). As a result, he began to use more technology in his lessons, including word processing files and PowerPoint presentations. With this increased use, his opinion of the technology in the classroom also changed. Now, like other technology-using teachers, he began to experience inconsistencies that hindered his lessons, including many that were solvable through better maintenance. In general, Craig's level of adaptations increased with more frequent technology use in the classroom, but it was unclear whether he would continue to expand or even maintain his current level of use.

Additional differences from what was reported above involve Craig's levels of both satisfaction and contentment in his position. Owing mainly to Craig's relative inexperience in teaching, the theory predicted that he would have a lower level of satisfaction than other teachers. However, when queried recently about this, it was clear in his response that he felt a very high level of satisfaction. This may be attributed to the extra experience that he had gained in the interim, or, as indicated in Section 9.2.5, may point to shortcomings in the properties in this category. Finally, in the same query, Craig responded that he was especially contented in his position at Park University, although the theory predicted a lower level of contentment. As discussed in Section 9.2.6, this mismatch in degree is likely to have been the result of the relative inaccuracy of the properties in this category, missing properties, or both. Further limitations such as these are discussed in Chapter Ten.

9.5 Jerry's Case

At the start of the study, Jerry was in his first semester of teaching at Park University as a full-time instructor. However, he had had over 10 years of second language teaching experience in Korea and Eastern Europe before accepting his new position. Jerry majored in French as an

undergraduate and had numerous certificates and an advanced degree in language teaching. He also had experience in coordinating a second language learning center and was successful enough to be asked to direct the same center for a one-year period. In terms of technology training and experience, Jerry had been taught how to use a specific computer-based hardware system for business reservations in a previous non-teaching job, but had never received any formal training in using standard computers or software. He was somewhat eager to learn about new programs such as PowerPoint owing to the presence of teacher computers and LCD projectors in classrooms at Park University. In this regard, Jerry had witnessed friends and colleagues using various computer applications and had a cautious enthusiasm about their potential for use in his teaching. However, Jerry was particularly prudent and deliberate in making any changes in his teaching and typically took longer than other teachers to make decisions in similar circumstances. In the classroom, Jerry practiced a very communicative form of teaching closely based on his formal training which had largely become intuitive owing to his teaching and teacher-management experience. For instance, the mainstay of his lectures was pair work activities in which he walked around the classroom monitoring student progress and rarely, if ever, interjected without student request or invitation. However, similar to Tina's perspective, he felt Korean students often lacked critical thinking skills and had difficulty in asking questions or taking initiative. Therefore his "preferred style" (POI #1) was to answer student questions with questions before suggesting any answers. In his second semester, Jerry had begun using technology in his teaching, principally Microsoft Word, as a surrogate chalkboard as he had "an issue with using chalk in the 21st century….Also, it's just messy, it's dirty and…once you've got the presentation made up…doing the lecture is a piece of cake" (SSI#1). Jerry's perspective on each of the eight categories of the theory is considered below.

9.5.1 Adapting

Jerry was quite involved with making adaptations in his teaching, owing mostly to his lack of experience with the context and the requirements of his new position. He was not used to a reading/writing-based curriculum or to larger sized classrooms that were often overcrowded with extra desks. Furthermore, Jerry liked "to take students out of the book" as he disliked lessons that were "very old-school" (POI #1); that is to say, he disliked rote learning methods such as

teacher-centered lectures that followed prescribed materials. He also did not feel that the curriculum at Park University matched his usual teaching goals, which included working on "lexical chunks" (SSI #1) and collocations to combat Korean students' wide but shallow vocabulary usage. Jerry was not for the most part active in class and as mentioned was significantly risk averse in his teaching decisions. However, he showed great concern for the use of authentic and practical materials and described this as an important facet of why he was not happy with the curriculum in the freshmen courses. Finally, he was beginning to incorporate technology into his teaching but in a careful manner that targeted specific needs. On the whole, this category predicted that Jerry would make a fairly high and stable number of adaptations in his teaching despite being a new teacher. That is to say, he would likely and consistently make more adaptations than other full-time teachers owing mainly to two factors: first, as a new teacher, he would make relatively more adaptations to his teaching out of necessity, but as this need decreased with experience his use of technology would increase, thus requiring a similar, if slightly lower, level of adaptations.

9.5.2 Controlling

Jerry's adherence to his training as a language teacher greatly influenced his classroom methods. Though he had sections of his lessons which were teacher-fronted, most of his lessons involved student-centered pair work. As mentioned above, his teaching style and pedagogical decisions were in sharp contrast to the more traditional methods perpetuated in Korean education. However, as a new teacher, Jerry was necessarily more concerned with covering materials which would be covered on exams as well as establishing a positive teacher image in the Department. He was also considerably risk averse and preferred fewer contingencies to occur in the classroom. Lastly, he took issue with both the large class sizes and the crowdedness as they both hindered his one-to-one interactions with students in the classroom. Overall, this category predicted that Jerry would be largely student-centered in his methods but would become considerably more so as he gained experience in the Department.

9.5.3 Sharing

Jerry was an amicable teacher in the Department and often sought advice from other teachers about department standards and practices that were unknown to him. However, certain restrictions kept him from sharing at the level to which he was accustomed in his previous teaching positions. Owing to the relative isolation of semi-private offices and conflicting work schedules with colleagues, he tended to engage in less sharing than he desired: "…everyone was always there, talking and you know…sharing their ideas…whereas here everyone comes and goes on different schedules, so…" (Jerry, SSI#1). Moreover, his teaching experience and independence of methods also hindered his need to seek and share with other teachers. On the other hand, as a new teacher, Jerry was to a degree dependent on other teachers to ensure that his methods and goals were well-aligned with department standards. Therefore this category predicted that Jerry would engage in an average amount of sharing despite his clear preference for a more clubhouse atmosphere of interaction and cooperation among teachers.

9.5.4 Relying

Jerry had used technology personally throughout his adult life, including first experiences on how to use Word Perfect as an undergraduate student. He did not play computer games often or chat online, and, despite receiving little formal training in computers, believed in the ability of technology to improve certain aspects of both his personal and his professional life. Further, he placed a lot of emphasis on teaching authentic materials to aid students' practical language use outside the classroom. Jerry also believed in his own personal learning and professional growth and sometimes attended conferences or gave presentations. However, his more considered nature and concern for image could negatively affect his willingness to make changes in the classroom, notwithstanding any willingness he might feel toward technology use as being "more professional" (SS1#1) in appearance (see Section 8.5). Jerry abhorred the use of chalk for many reasons and welcomed the chance to prepare materials before class but was limited by the demands of being a new teacher in addition to his own personal demands. As Jerry began to use technology in his teaching, like many teachers, he also realized certain associated problems such as software issues related to poor maintenance. However, he still had a positive outlook for

technology in education and felt that his use would likely increase in the future. In summary, this category predicted that Jerry would be very willing to rely on technology use in his teaching, though in a measured and cautious manner.

9.5.5 Satisfying

Confidence, experience and technology use all had influence on Jerry's level of satisfaction at Park University. In the area of confidence, Jerry had a moderate level of self-efficacy and job security, though he was uncertain about both owing to his inexperience in the new job. Jerry also had more career experience than average in a department of mostly seasoned veterans. Though he was not unhappy in having a lower level of influence at Park University, he was bothered by some of the more prescriptive elements in the freshmen courses which were frustratingly beyond his control. Moreover, the inconsistencies that he experienced while using technology in the classroom may have tempered his enthusiasm in this area. In conclusion, this category predicted that Jerry would be on average less satisfied in his position than most of the full-time instructors in the Department.

9.5.6 Growing

Once again, as a new teacher, Jerry might be hard pressed in deciding if he was contented in his new position. In terms of professional growth, he had just made a step in his career but it was unclear whether he viewed this as a step up. Outside teaching, he had taken some strides toward improving his teaching knowledge and credentials. Further, Jerry believed in teamwork (if conducted with equal contributions from all members) but as indicated above was not well aligned with Korean education or administrative policies in the Department such as curriculum decisions. He was also less satisfied with the utility of classroom technology (once again owing mostly to the lack of maintenance) though he greatly appreciated having the luxury of teachers' computers and LCD projectors in every classroom. Finally, he was somewhat happy with the salary and benefits, though less so with the lack of teaching community owing to scheduling conflicts and separation of offices. On the whole, this category predicted that Jerry would be slightly less contented than the average teacher in his position.

9.5.7 Living

This category is based on the balance between teachers' personal and professional lives which was underpinned by and had effects upon the number of personal and professional demands on teachers' time. Jerry had more than an average number of personal demands on his time (which for reasons of confidentiality have not been elaborated on here). Likewise, as a new teacher, he incurred additional demands on his time for new materials development, above and beyond the rigors of most full-time teachers. Therefore this category would predict that Jerry placed a roughly equal amount of importance and energy into his personal and professional lives.

9.5.8 Investing

The first of the aforementioned questions in this category asked teachers why they would need to consider their use of time. As discussed above, Jerry had an incentive to prioritize both his personal and his professional time. Owing to his unique situation as a new teacher with an exponential number of responsibilities (and a somewhat busier personal life), he also would need to consider whether any undertaking had merit to justify his time investment. For instance, in his attempts to incorporate technology in his teaching, Jerry favored the use of word processing documents over PowerPoint slides owing to the extra effort required to produce the latter. The second question in this category involved how teachers managed their time such as what their level of diligence was and in what way they attempted to improve their efficiency and effectiveness. Jerry often considered the methods and effects of any action that he undertook and strove, where possible, to improve his efficiency. However, he admitted that at times he did not always complete tasks in the most expedient manner possible (Jerry could be described as quite prudent, but owing to his casual manner and sociability would probably never be labeled pedantic). The last question looked at the effects of more time demands on classroom teaching and preparation. Jerry, like the overwhelming majority of full-time instructors, realized the benefits and preferred the use of materials that could be taught more than once. Also, as a new teacher, he naturally focused more on covering materials likely to be on future tests, although he would have preferred spending more time on speaking activities or other more practical or authentic materials. In conclusion, this category predicted that Jerry would attempt wherever

possible to be more efficient and effective owing to the increased demands of being a new instructor with nearly an equal number of personal demands on his time.

9.5.9 Epilogue on Jerry's Case

Jerry taught at Park University for one year (two semesters) before accepting a management position in the language education department of an American university. During his year of teaching, he continued to experiment with the use of technology in the classroom, including employing PowerPoint slide shows in at least one of his lessons. However, he worried about "too much of a computer version of talk and chalk" by over-preparing materials which impeded the ability to have more "fresh and lively" (POI#1) lessons. Moreover, he was careful to use technology in the classroom only for necessary tasks which aided the speed and efficiency of comprehension in his lessons. Further, he liked the idea of "going paperless as much as possible" (POI#1) and so increasingly employed the department website for longer handouts and important announcements. In summary, Jerry's perspective as presented above remained fairly consistent during his short time at Park University.

9.6 Stephen's Case

Stephen had been an English teacher in Korea for over five years at the start of the study, including one year of teaching at Park University. He studied engineering as an undergraduate and later completed a graduate degree in English literature in the hopes of developing a career as a writer. He became an English teacher because he "liked to be with people" (SSI#8), was interested in literature and journalism and needed money to finance his writing career. Stephen felt some insecurity in teaching English because he had no teacher training or related experience. He was a native French speaker who based most of his teaching methodology on his own experience in learning foreign languages, including English and Korean. He greatly emphasized the use of authentic materials and practical learning techniques in his teaching. For instance, insights gained from his knowledge of Korean were used to help to connect with his students and develop more relevant approaches to their learning. Stephen was a very hard working teacher

who probably spent more time in his job than any other teacher on faculty – mostly owing to self-imposed tasks and high diligence. He also employed technology extensively in his teaching both in and out of the classroom such as in his freshmen English classes which incorporated line-by-line analysis of prescribed readings on word processing files. Moreover, he provided copies of all class materials including lecture files and activity handouts on the department website and communicated unfailingly with students using email. Stephen had always had an interest in technology, beginning with his own experiments on Commodore VIC-20 and 64 computers as a youth.

9.6.1 Adapting

Stephen was one of the most prolific adapters in the Department for a number of reasons. First, his teaching style was significantly different from any other teacher. As mentioned above, his freshmen class lesson plans centered on careful text study in combination with group and pair exercises. He also provided students with numerous opportunities to interact with him, including before and after classes, in emails, on discussion boards, and at times on weekends or through personal cellular phone messaging. Second, Stephen took many intentional and unintentional risks in his teaching such as relying on technology for in-class testing (which was not always dependable) or adjusting his class schedule to allow students to submit essays and research papers up until the final day of the semester (which put pressure on him to complete his grading by the school deadline). An important consideration in this regard was Stephen's extensive use of backup materials in the event that problems occurred. Although he took risks with the use of technology, he came to "expect problems" (POI#2) and so always had multiple activities at the ready for such occurrences. Third, he stressed practical learning styles with authentic materials and employed wide use of technology throughout his teaching. On the other hand, he was relatively less active in the classroom than other full-time teachers in terms of kinetics. In short, this category clearly predicted Stephen's frequent and extensive use of adaptations.

9.6.2 Controlling

Stephen's teaching style was teacher-centered during most of his lesson time. Although he interspersed pair and group activities in his teaching, the largest percentage of his class time was spent in explanation of the required reading texts. His methods and decisions were also well-aligned with Korean standards, though he did differ significantly in showing little teacher image concern. He felt that he was teaching for the students and so was not concerned with how his methods appeared to others and the administration. He also did not worry about any unexpected events occurring in the classroom as he was usually well-prepared to alter his plans if necessary. Furthermore, his lessons were built around comprehension of the required texts, so any testing materials were covered as a matter of course. As mentioned above, Stephen did use pair and group work in his teaching along with some customization of lessons for individual classes, but to a lesser degree than other full-time teachers. Finally, he was troubled by the large number of students in some classes as well as crowdedness caused by too many desks in the classrooms. Therefore, in the final analysis, this category would predict that Stephen would have more control of his classroom owing mainly to his teaching style which was based on teacher explication.

9.6.3 Sharing

Owing to Stephen's position, separation and independence, this category predicted that Stephen would engage in sharing at a level which was comparable with other teachers in the department. As a full-time instructor, he was physically separated from most of his colleagues. He also was very independent in both his personality and his teaching style. Moreover, he showed little concern for his teaching image and perceived restrictions that inhibited sharing with other teachers. However, he did have a strong desire for training, but only if it was well-targeted to his particular level and needs. In summary, this category predicted that Stephen would participate in less sharing than he desired but at a level equal with most other full-time teachers in the Department.

9.6.4 Relying

Not surprisingly, Stephen's dimensional ranking on all seventeen properties of this category pointed toward more willingness to rely on technology both in and out of the classroom. He was very technology-oriented in his life and had received a substantial amount of training in its use. He also had more concern for practical lessons with authentic materials. Moreover, he was willing to try new techniques in his teaching even if they involved some risk. He was very independent in his teaching style and did not worry about his teaching image. Stephen also had a strong learning desire and regularly attended teaching conferences. Significantly, he was highly tolerant of any increased workload with technology use. For instance, he regularly posted classroom materials online after every class but more than once during the study drastically underestimated the amount of time it took to do so. Further, he spent a large amount of preparation time in order to "have everything prepared" (POI#4) for lessons. He also did not use chalkboards and so lamented classroom computer problems and especially those related to lack of maintenance. Finally, he strongly believed that he would use technology more in the future. In a nutshell, Stephen was more willing to rely on technology than any other teacher in the Department even though he also perceived more difficulties with its use than anyone else.

9.6.5 Satisfying

In this category, Stephen ranked high on five properties that pointed toward more satisfaction and five properties that showed less satisfaction than average. However, owing to the dimensional degree (or relative ranking) of some properties, this category predicted that he would be at least somewhat satisfied in his work. The first and second of the positive ranking properties showed that Stephen was a confident teacher as he had relatively high levels of self-efficacy and job security. He also had a very independent style of teaching and a low level of teacher image concern and employed word processing programs in his teaching more than any other teacher. On the negative side, Stephen had less career teaching experience than most of his more seasoned colleagues and was also a new teacher in the program which was reflected in his lower level of influence. He also had substantial belief and knowledge in technology. As mentioned above, this category predicted that Stephen would have more job satisfaction despite

ranking equally on both ends of the dimensional scale on the properties in this category. His confidence and independence seemed to balance any detrimental effects resulting from his lack of experience and technology background.

9.6.6 Growing

The first area in this category found that Stephen was very interested and involved in his own personal learning. He regularly attended conferences and was open to learning new teaching techniques (particularly if they involved ways to teach more efficiently or effectively). However, he preferred to work at his own pace rather than in teams and had a strong belief in technology use in education. In the second area, Stephen had mixed indicators including sharing some beliefs and methods with Korean education while at the same time perceiving it to be out of date and ineffective at teaching English. In terms of department decisions and procedures, he felt that many standards were not consistent with his own beliefs such as systematic turnover and curriculum decisions; therefore he was uncertain if more policies would necessarily have a good effect. In the last area of this category, Stephen was extremely dissatisfied with the technology maintenance but happy with the salary and benefits. Taken as a whole, this category predicted Stephen would be somewhat more content in his position owing mainly to his independent beliefs and satisfaction with the salary and benefits.

9.6.7 Living

Stephen devoted large amounts of time and energy into his job. He was able to do this by having fewer personal demands on his time and a high degree of devotion to his position. In terms of idiosyncrasies, he considered himself to be a perfectionist and indeed displayed this tendency in his actions. In his desire to have students achieve as much as possible during his tutorage, he allotted extra effort and time from his personal life to accommodate their schedules and shortcomings. For instance, if students were not available to see him during regular office hours, he would sometimes designate office time on weekends to meet them. Moreover, if students did not perform well on speaking exams, they were given the opportunity to retake them even if it

meant more work for him. In summary, this category unequivocally predicted that Stephen would place more importance on his job than on his personal life.

9.6.8 Investing

This category perhaps more than any other underpinned Stephen's concerns and actions as they relate to his teaching. He was primarily interested in improving the efficiency and effectiveness of his teaching and so the answer to all three questions in this category is the same. Stephen was constantly reassessing various aspects of his teaching and so valued being able to reuse materials so that he could perfect the adaptations that he made to them. He was also very direct and practical in his teaching and so focused on direct study of the texts to help students not only to comprehend the new material but also to do well on subsequent tests. Unfortunately, this prioritizing meant that overall he sometimes did not have as much time in class for more communicative activities. He was also devoted to helping his students even if it placed more demands on his time or meant that he would have to delay or reschedule events in his timetable. In conclusion, Stephen had a large number of demands on his time which fortunately matched his passion for improving his own efficiency and effectiveness. He felt a need for prioritizing of events in his teaching and interactions with students equal to or more than other teachers.

9.6.9 Epilogue on Stephen's Case

Over the course of the study, Stephen adapted certain aspects of his teaching which are important to understanding his perspective and decision making as they relate to three categories: *Relying*, *Satisfying*, and *Growing*. First, owing to numerous negative experiences with the classroom computers, he resolved always to prepare backup plans in case the technology proved unreliable. Effectively, this meant that Stephen would have to prepare twice or three times as many materials for each lesson. However, eventually even this time-consuming measure proved to be ineffective given the number of problems that he experienced. Therefore he decided to begin bringing a personal notebook computer to class for use with classroom projectors and sound systems. This significantly increased his setup time for class, but provided a much more consistent platform that he could rely on. However, he continued to experience further problems

with the classroom sound system and so decided that he also needed to purchase his own speakers and bring them to class for certain lessons. Stephen did not have reservations about his personal cost in acquiring the materials but was frustrated by the lack of maintenance and design flaws in the classroom technology setup which effectively thwarted teachers' efforts and use. For instance, Stephen attempted to perform maintenance on the classroom computers, but was told that he did not have permission to do so from the maintenance supervisor. Unfortunately, the supervisor followed an "AS" style of maintenance (as mentioned in Section 8.5) that serviced computers only when problems proved critical. Stephen analogously describes this situation as comparable to a family car where the keys are made available for anyone to use, but no one checks the oil, tires or engine until the car breaks down. Second, during a recent review, Stephen indicated that his levels of both satisfaction and contentment in his position at Park University were considerably higher than reported above. This is similar to Craig's case and seems likewise to point to problems associated with the incompleteness of the properties of these categories, the relative inaccuracy of their dimensions, or both. As discussed in Sections 9.2.5 and 9.5.9, shortcomings in the *Satisfying* and *Growing* categories may make more accurate predictions impossible at this time. As is discussed in the limitations section in Chapter Nine, future studies could look into more accurately covering aspects and properties to provide a more complete view of these categories.

9.7 Summary

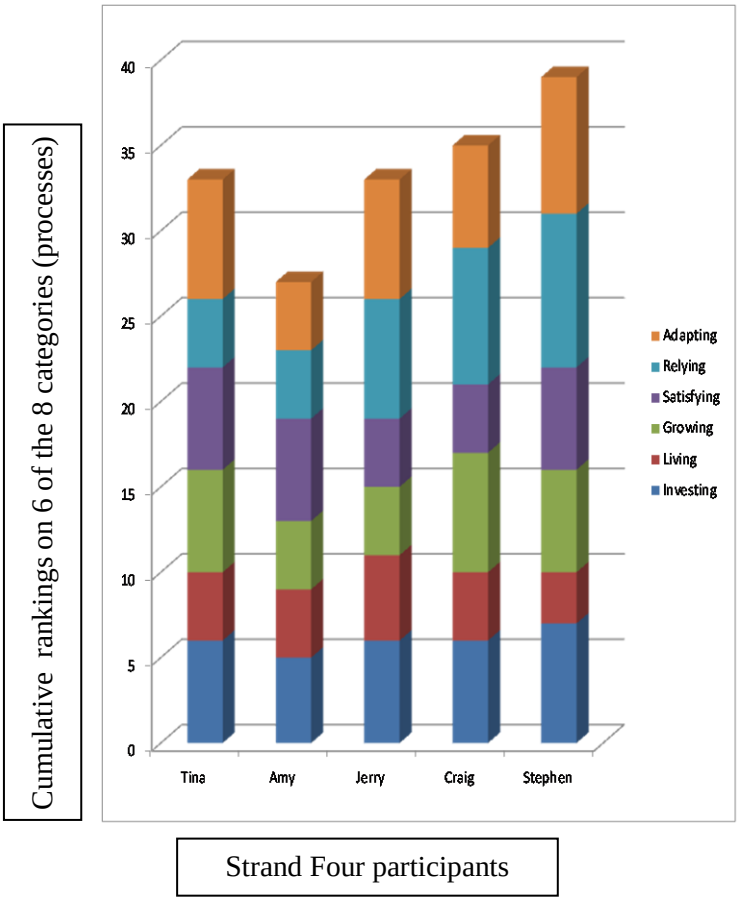
The five profiles in this chapter helped to illustrate the eight categories of the theory as they relate to individual teachers. This information provided background into understanding teacher decision making and the reasons why certain teachers used more technology in the classroom than others. Moreover, by comparing each teacher's situation and perspective to the properties in each category, it became clear that certain categories had more influence on decisions to use technology while others had more tenuous relationships (see Table 9.1). Two such categories with indirect (but unconfirmed direct) connections were *controlling* and *sharing*. Although teacher control in the classroom held a prominent position in determining why and how teachers made decisions, there were no causal relationships with technology that could be posited.

However, it is important to remember that this understanding of teacher control is not referring to teachers' ability to control the technology per se, but rather their desire to have more control over their lessons. In short, teachers who liked to have more control over their classrooms were not more or less likely to use technology than teachers with more student-centered approaches. Similarly, the amount of sharing that teachers desired and took part in was also a significant part of teachers' decision making but no incontrovertible technology-related relationships could be established. Therefore, in order to make overall comparisons among the five teachers' perspectives toward technology use, it is necessary to focus on the remaining six categories of the theory.

Table 9.1
Eight Categories' Relationships with Teachers' Use of Technology

Category	**Influence on Technology Use**
Adapting	More adapting is positively associated with more technology use
Controlling	No direct relationships with technology use can be supported at this time
Sharing	No direct relationships with technology use can be supported at this time
Relying	More willingness to rely on technology is positively associated with more technology use
Satisfying	More general job satisfaction is negatively associated with more technology use
Growing	More contentment with position is negatively associated with more technology use
Living	More living importance is negatively associated with more technology use
Investing	More demands on time is positively associated with more technology use

Teachers' rankings on these six categories which were found to have direct links with technology use are compared in Figure 9.1. From the figure, a hierarchy of potential technology use among the teachers can be roughly determined, with Stephen ranking the highest and Amy the lowest.



Note. Higher values for each category (Y-axis values) reflect more probability of technology use, not current level of use. Values for three categories, Satisfying, Growing, and Living, were reversed to illustrate positive tendencies as they relate to technology use.

Figure 9.1. Teachers' rankings on six of the categories in the theory.

In Tina's case, her lower level of current use (relative to her potential) may reflect a tendency or future inclination toward use. This was supported in comments from her recent review stating that her willingness to rely on technology had "changed considerably" owing to "having less physical energy in the classroom" and being more comfortable with the "better setup" in the new classrooms which allowed her more "visibility" and thus better "connection with students" than was previously possible (personal communication, August 12, 2010). Moreover, in Craig's case,

his initial lower level of use and subsequent increase (though still lower than his potential from the theory) seem to be a result of changes in his opinions over the course of the study. As mentioned in Section 9.4.9, Craig's willingness to rely on technology in the classroom changed significantly once the Department moved to the new building with clear-walled offices and classrooms. The ability for Craig to observe other teachers' use of technology in the classroom put pressure on him to begin using it more in his lessons but also inspired him to explore its potential for improving his teaching. As a result, in his recent review, he declared an equally high level of willingness to rely on technology with Tina. Further, these two cases appear to be part of a trend in the Department toward more technology use which is at least partially attributable to the "observability" (Rogers, 2003, p. 258) of the new classrooms. By being able to see when and how others employed technology in their teaching, teachers seem to have been motivated or in some cases compelled to incorporate technology into their own teaching. This issue is further discussed in Sections 9.2 and 9.3 as it relates to Rogers' (2003) theory. Finally, Stephen had high levels of potential and use, but most likely Stephen would be apt to employ more technology in his teaching if not for certain limitations which were discussed throughout this chapter. If some of these restrictions were lifted or if Stephen continued to strive for more innovation, differences between his level of use and that of the other participants in this strand might become more perceptible.

In summary, Chapter Nine demonstrated use of the theory's eight categories to assess five teachers' backgrounds, decision making and predilections for technology use in their teaching. Each of the five cases was presented in order of the teachers' current level of use beginning with Tina at the lower end of the range and concluding with Stephen at the upper end. In the first case, results from the eight categories predicted that overall Tina had a higher potential for technology use than her current level. However, in more recent follow-up reviews, Tina suggested that she was now much more willing to use word processing programs and PowerPoint slides in her teaching. Owing to many contextual changes such as new classrooms, new lower-level classes and personal factors, she now felt that these programs would improve the efficiency if not the effectiveness of her teaching. In short, the theory predicted a higher potential for technology use in the classroom for Tina which had already begun to be realized by the end of the study. In the second case, the theory predicted that Amy would be less willing to engage in technology use in

the classroom despite her more consistent use outside the classroom. However, her approach was thought to be highly variable with contextual factors such as the amount of work involved with using technology and her generally high regard for technology's potential and future pervasiveness in education. In the third case, the theory predicted that Craig had a higher potential for use than his current level, particularly in the classroom. He employed the Park University website and other websites to aid discussion by students and improve his ability to assess students' efforts accurately, but was not convinced of the benefits for technology use in the classroom. However, owing primarily to changes in the classroom (and office) setup which allowed more observation of other teachers' use of technology, he began to incorporate it more in his classroom teaching. In terms of the theory, this change in his teaching helped him move toward more alignment between his level of classroom use and his potential, given factors such as his considerable background and experience in information technology.

In the fourth case, the theory predicted that Jerry would be progressively more willing to rely on technology in his teaching. As a new teacher, he was busier than most teachers in adapting to his new position and so followed more closely with department standards than he would be likely to do after gaining years of experience. He also held high regard for the potential of technology use in education and had taken steps to begin using it is his teaching. However, he was concerned about the tendency for lessons using technology to become stilted through over-preparation of lessons. Moreover, his more considered nature would necessarily delay the acceptance of new technology-assisted methods until he was able to work out their usefulness and precise application. The theory was able to predict his higher potential for use, though this was tempered by his more conservative deliberations. In the fifth case, the theory predicted that Stephen would be very willing to use technology in his teaching. He ranked high on all dimensions involving technology background, use and efficacy and was also highly concerned about using authentic materials and improving the efficiency and effectiveness of his teaching. However, through frequent use, he had also realized many issues which hindered his consistent use of the classroom technology. Chief among these factors were the lack of computer maintenance and an overall lack of department support for teachers to employ technology in their teaching. Therefore he had largely ceased his reliance on the classroom technology and instead utilized his own computer, programs, and sound system. Out of the class, he continued to rely on the Park University

website, though he lamented its many problems in design and function which hampered his use. As predicted by the theory, Stephen had high potential for technology use which he had realized even in the face of inconsistencies and lack of support.

In this final section, the five teachers' cases were compared for their potential to use technology in their teaching. In this comparison, two categories, *Controlling* and *Sharing*, were not employed despite their significance in teacher decision making. Although both the relative amount of teacher control in the classroom and their level of sharing permeated teachers' thoughts about their teaching, no direct relationships with the potential for technology use were found. Furthermore, the results from the teacher comparisons indicated that three teachers' potential for use did not match their current levels of use. Possible explanations were suggested, including a possible lack of accuracy and/or inclusiveness of the properties for each category. However, both cases could also be explained by changes in teacher opinions and external factors. Tina had a higher potential than her current level of use, but, over the course of the study, became much more willing to rely on technology in her teaching. If realized, this would bring her potential for use and current level of use into alignment. On the other hand, Craig had a lower level of use than his potential from the theory would indicate. However, owing to changes in the classrooms and offices which allowed more observation of other teachers' methods, he became more optimistic about the usefulness of and necessity for technology use in his lessons. Thus, as predicted by the theory, Craig was beginning to realize his high potential for technology use through external changes. Moreover, this move toward more technology use as a result of increased "observability" (Rogers, 2003, p. 258) aligned with one aspect of Rogers' theory. Finally, Stephen's level of technology use was discussed as it related to his potential for use. It was posited that Stephen had nearly maximized his practical use of technology and so his higher potential was most likely not fully realized. Further conclusions, limitations, and implications are considered below in Chapter Ten.

Chapter Ten: Conclusions, Limitations, and Implications

10.1 Introduction

Chapter Nine explored five teachers' cases as they related to the eight categories of the "what works" theory. Insights and limitations were revealed through comparisons of factors which influenced teachers' willingness to use technology in their teaching. In this concluding chapter, closure for the study begins with a consideration of the original research aims and questions. Next, the research findings are contrasted with Rogers' (2003) diffusion of innovations theory, followed by a brief comparison of three doctoral dissertations which have relevance to the current study. Final conclusions are then presented along with a look at the limitations of the study. The penultimate section offers conjecture on the study's more global findings as they relate to technology's implications for education. The final section makes suggestions for further study through eleven unanswered questions which arose during the study.

10.2 Research Aims and Questions Addressed

This study explored the personal and contextual factors that underpinned teachers' decision making in order to reveal insights into their perspectives toward and uses of technology. During the course of the study, two domains were discovered which framed the internal and external concerns of teachers in this regard. Additionally, a third domain was posited which formalized the dynamic at play as teachers attempted to find a balance between the demands of the first two domains. Findings from each of these domains help to answer the three research questions which guided the study's formation and analysis (listed in Section 1.3). Each research question is addressed below.

Research Question 1:

What relationships exist among teacher background, beliefs, setting, and classroom practices?

Overall, findings suggest that teachers attempted to find a balance between their background (characteristics, beliefs, and resultant desires) and the setting (work requirements, students, and other teachers) in order to maintain a consistent pedagogy. Consequently, their "classroom practices" were the actions that they thought were needed (what works) in order reasonably to satisfy – to varying degrees – students, the administration, and themselves.

In more depth, Chapter Seven detailed aspects of the two contextual domains in the "what works" theory which directly addressed research question one. In the first domain, ten categories were found which framed teachers' internal concerns as they applied to their teaching. These included: *teaching beliefs*, *learning experiences*, *work ethic*, *attitude toward technology*, *efficacy*, *development*, *innovativeness*, *sociability*, *attitudes toward authenticity*, and *personal*. Further, six categories made up the external or contextual concerns in the second domain: *administrative issues*, *Korean setting*, *resource availability*, *technology training*, *student variables*, and *teacher community*. In Chapter Eight, the third and final domain contained eight categories which helped to describe the inter-relationships between the first two domains: *teaching practices*, *roles and responsibilities*, *community sharing*, *use of resources*, *satisfaction and self-efficacy*, *position*, *bias*, and *time*. These eight categories were better thought of by the processes that they involved (respectively): *adapting*, *controlling*, *sharing*, *relying*, *satisfying*, *growing*, *living*, and *investing*. Therefore these eight processes provide the foundation for the complex relationships which exist among teacher background, beliefs, setting, and classroom practices. Rather than generally relating these processes to the current literature, each relevant aspect under research question two is compared with the literature reviewed earlier in Chapter Three.

Research Question 2:

What are the main hindrances to technology integration in the classroom?

The main hindrances to technology integration often find parallels in the main enablers; in some sense, they are two sides of the same coin. Findings suggest a number of factors which have either hindered or encouraged teachers to use technology in their teaching. Among these were personality factors, previous learning experiences, teaching beliefs, and beliefs about technology. However, teachers did not make decisions about technology use per se; they made decisions

about what was needed in their teaching in a particular circumstance – whether that included the use of technology or not. Therefore an overriding factor was whether teachers perceived that a given technology would work in the larger sense of meeting perceived needs. Finally, teachers' willingness or aptitude as lifelong learners was an essential factor given that teaching with technology required teachers to make continual adaptations and in some cases multiple lesson plans. Each of these factors is unpacked below to make clear its connection with teachers' willingness to use technology.

Personality Factors

> Um…making PowerPoints? – Ah, I don't know, I like drawing. I mean, I was an Art student so – and it's a little bit of showmanship on my part. (Rich, SSI#5)

> But the thing is that I start anticipating problems before they happen and I get nervous, like oh, what's going to happen now? And everybody's staring at me and I can't get the stupid thing to go! (Sophie, SSI#13)

Teachers throughout the study made reference to their personalities and personal preferences as reasons why they either attempted to use technology in their teaching or, as shown above, avoided it. In fact, the pervasiveness of these factors caused difficulty at the start of the study because it appeared that they were involved in every decision that teachers made. Only by digging more deeply into the motivations for specific decisions could concepts such as risk taking, image, seeking learning, sociability, and attitude toward technology be identified. These and others eventually led to the properties found in the eight categories of the "what works" theory. However, just as it would be incorrect to consider technology use in isolation, it would also be short-sighted to ignore the complex relationships that make up an individual's personality. Therefore this area is best considered through the aspects from the literature review given in Table 3.2 on the enablers of technology use (under "Teacher Personality and Attitudes") which can be supported in the current study (Table 10.1).

Table 10.1
Findings from the Literature on Teacher Personality and Attitudes Supported in the Current Study

Enabler	***Details***	***Source***	***Study Sample Quotation***
Teacher willingness to change	*"The teachers' willingness to learn and change appears to be a critical element in this process" (p. ix)*	*Sheingold & Hadley, 1990*	*"I think any change has to happen gradually. Other teachers might be quite happy with continuation of the status quo. That's a problem" (Jerry, SSI#1)*
Teacher comfort in changing roles	*"The resultant shift in teacher-student boundaries has significant implications for the understanding of teacher professional development. But this shift requires teacher comfort and confidence – one of many individual characteristics contributing to successful ICT implementation" (p. 483)*	*Granger, Morbey, Lotherington, Owston & Wideman, 2002*	*"Well, they just need to know how to control their own learning….I see a move towards a more…constructivist methodology as a very positive thing, but the students are going to have to change" (Russ, SSI#4)*
Teacher willingness to take on risks/responsibilities	*"…it is also clear that faculty can expect to invest additional time preparing materials and resources when they integrate technology into teaching and learning" (Jacobsen, 1998, ¶ 11)*	*Jacobsen, 1998; Norum, Grabinger & Duffield, 1999*	*"I was trying to make the computer work to show a video and it wouldn't work….I know now to expect problems; I have like backup one and backup two…" (Stephen, SSI#8)*
Willingness to admit ignorance/learn in front of students	*"…engaging in learning in front of students rather than presenting oneself as fully knowledgeable" (p. 175)*	*Windschitl & Sahl, 2002*	*"But I have no problem. I mean, I basically tell my students that I'm not an expert on computers, so, if I have a problem in class or if I have a question, I don't hesitate to ask*

			students" (Ian, SSI#12)
Teacher motivation/ commitment to learning	*"…these teachers are motivated by their own professional growth and derive 'personal gratification from the learning of new skills'" (p. 20)*	*Sheingold & Hadley, 1990*	*"But I want to start really increasing my skills, but it's really…good now that I have a concrete need for PowerPoint and the opportunity to actually use it" (Jerry, SSI#1)*
Experimental approach to teaching	*"They seem to take a flexible, even experimental, approach to their teaching with technology" (Sheingold & Hadley, 1990, p. 17)*	*Balanskat, Blamire & Kefala, 2006; Sheingold & Hadley, 1990*	*"Next semester, what I want to try to do is post it before so the students can actually preview before the class" (Stephen, SSI#8)*
Teacher modeling	*"Teachers need to model life-learning for students and teach how to evolve personally in life"*	*Jacobs & Farrell, 2003*	*"…the goal should more be to model ….If we're going to teach them something, we should bear in mind that this should serve as a model for them to go and do it themselves" (Russ, SSI#4)*

Previous Learning Experiences

> So I tell a lot of jokes and stories – but they're related to our readings and using the vocabulary – so I think they tend to remember those things more. That's what I remember from my school, the funny stories that the teacher used to tell about the subject. (Sarah, SSI#7)

> And that's also one thing I learned from the training I had when I was working at [another university] is the fact that people have different learning styles. So when I'm in class, I try to use different learning styles. (Stephen, SSI#8)

Teachers in the study often based their teaching on what they had experienced as students. As full-time teachers at Park University were on average 40 years old, most of their learning

experiences occurred before the widespread use of personal computers. Consequently, these familiar learning experiences provide a comfort zone which largely excludes technology use. Teachers wishing to engage in more technology use in their teaching necessarily had to be willing to put aside their own learning experiences or at least to downplay their significance. This finding was consistent with the literature in this area which recognized the effects of teacher learning experiences on later technology use (Calderhead & Robson, 1991; Gürbüztürk, Duruhan & Şad, 2009; Hollingsworth, 1989; Lortie, 1975; Pajares, 1992; Stuart & Thurlow, 2000; Zeichner & Liston, 1987).

Teaching Beliefs

> Actually, for me because my goal is to have the students get confidence, and for them to experience and practice English, whatever materials that are used doesn't matter. But it's how you go about it inside the class that's important. (Val, SSI#3)

> I think the most important thing that we can do as English teachers is to teach the students…how to teach themselves. (Russ, SSI#4)

Teachers at Park University held beliefs about who they were and what they hoped to accomplish. These convictions were varied and came from a number of different sources such as previous learning experiences, training, and teaching experiences. Decisions about what to do in the classroom were based on a foundation of beliefs but were also governed by the logistics of making them happen. Teachers had to be able to recognize how the features of any proposed technology matched their preferred teaching techniques and the logistics of how it would work. That is to say, their decisions to use technology had to pass two requirements: they had to realize how it would fit their teaching beliefs and also how it would be feasible in use. However, teachers often had no experience on which to base these decisions and so when deciding whether a proposed technology would work in the classroom they instead relied on aspects of their personalities and general beliefs about technology. Zhao, Pugh, Sheldon, and Byers (2002) had similar findings: "However, our observations suggested that an additional dimension of technology proficiency plays an equally important part: knowledge of the enabling conditions for a technology – that is, knowing what else is necessary to use a specific technology in teaching" (p. 489). This issue is discussed further in relation to beliefs about technology discussed below.

Beliefs about Technology

> I'm not…I guess a technology-dependent type of teacher; I don't use those things much. (Val, SSI#3)

> I think in most jobs, you know, in just about every job, you need to know how to use the computer and I think that's one of the basic functions. If you're going to be giving any kind of presentations, you should learn how to use PowerPoint – at least a basic knowledge. (Martin, SSI#11)

Teachers in the study held many deeply-seated beliefs about technology, both positive and negative. They included assumptions not only about technology itself, but also about how it would be put to use and the range of outcomes that it made possible. Perhaps not surprisingly, nearly every teacher in the study referred to computers as tools which were designed for specific uses rather than as a means for educational change or empowerment. That is to say, teachers in the study were first and foremost practitioners, not theorists. For instance, teachers saw computers as tools to "facilitate communication between the teacher and student" (Craig, SSI#2), "for practice or for working on certain skills" (Sophie, SSI#13), as "a grading tool" (Sarah, SSI#7), or as a way "to make authentic presentations" (Amy, SSI#10) but none discussed the potential of technology to bring about educational change. This "instrumental" view of technology assumes a "division of labor: we either choose (or are forced) to use computer technology, or we choose not to. But we do not contribute to its development" (Haas & Neuwirth, 1994, p. 326), nor do we see its use beyond the accomplishment of a specific task. The trouble with this view of technology is that, in order to know what is possible through technology use, "first we have to have those tools and we need to know how to use them. And so, knowing how to use them also helps us to choose the right tool" (Stephen, SSI#8). In other words, teachers have to have some fore knowledge (and experience) about the range of possible uses for a specific technology in order to make informed judgments about its potential use in their teaching. Unfortunately, this was often not the case in the current study; teachers often had no information to go on and so often made decisions based on their personalities and general biases toward technology. Findings in this area from the literature which are supported in the current study are given in Table 10.2 (from Table 3.1).

Table 10.2
Findings from the Literature on Attitude toward Technology Supported in the Current Study

Barrier	Details	Source	Study Sample Quotation
Fear of technology	"However, Higgins and Shanklin (1992) found that fear of technological complexity was the most widespread concern among respondents in their study" (Mick & Fournier, 1998, p. 129)	Condie & Simpson, 2004; Mick & Fournier, 1998; Pelgrum, 2001; Sheingold & Hadley, 1990	"I felt very tense about it…It took a long time just to send emails to other people" (Amy, SSI#10)
Loss of image	"the fear of being made to look foolish" (Murray, 1995, p. 47)	Murray, 1995; Norum, Grabinger & Duffield, 1999; Pennington, 2004; Shedletsky & Aitken, 2001	"I don't mind when I'm with myself, but what I don't like is when I think I'm prepared and in front of a class and actually I've screwed something up and they're all…" (Sophie, SSI#13)
Loss of control	"Many thought these shifts would frighten teachers because it appears they have less control over their classrooms" (p. 190)	Norum, Grabinger & Duffield, 1999	"…sometimes I had so hard a time, such a hard time getting the attention of the students. I feel like if I turn off the lights for example, they'll wander away" (Tina, SSI#6)
Negative past experiences	"As noted above, early experiences tend to color later experiences, even to the extent that subsequent, contradictory information will be manipulated to fit with earlier interpretations" (Ertmer, 2005, p. 30)	Ertmer, 2005; Venezky, 2004; Watson, 2001	"Sure, things like that really put you off using technology – they really do" (Russ, SSI#4)
Tech must match pedagogy/philosophy	"…I'm not going to abandon what I think the schools want me to do with math just to incorporate technology" (Windschitl & Sahl, 2002, p. 183)	Venezky, 2004; Watson, 2001; Windschitl & Sahl, 2002; Zhao, Pugh, Sheldon & Byers, 2002	"So, ah, I probably had students who resisted all the way to the end but – it always does come up – but I actually don't allow it for specific reasons" (Rich, SSI#5)
No obvious benefits	"…technology did not seem necessary in a classroom oriented toward prescribed problem sets and convergence on discrete answers" (Windschitl & Sahl, 2002, pp. 196-197)	Shedletsky & Aitken, 2001; Windschitl & Sahl, 2002	"And I don't think the students do mind about that because, well, after all, we are a language class"

			(Val, SSI#3)
Faculty don't want development programs	"Getting teachers to want to participate in staff development programs was another hurdle mentioned" (Norum, Grabinger & Duffield, 1999, p. 196)	Norum, Grabinger & Duffield, 1999; Shedletsky & Aitken, 2001	"No, I never went to any of those workshops that the university provided here on the cyber campus" (Tina, SSI#6)
Lack of perseverance	"While we acknowledge that teachers have varying 'thresholds of inconvenience' when it comes to using technology…" (p. 200)	Windschitl & Sahl, 2002	"Ah, so, it's a formality for me; I have to do it, so I simply check the deadline for listenings on the Park University site, and then I check the homework" (Val, SSI#3)
Old paradigms with tech use (teachers don't change)	"Research on instructors' uses of technology to teach ESL or literacy shows that teachers adopt new technologies but think with old paradigms" (p. 41)	Petrie, 2003	"But if I had to do a lot of writing on the blackboard, it's much better if I do it in PowerPoint. It's much better to read, it's much faster for me to write, and looks more professional" (Martin, SSI#11)
Student attitude: Unwillingness to take responsibility	"…I still struggle with students who are conditioned to a system of grades and dependency…who are reluctant to take responsibility for their own learning…" (¶11)	Jacobsen, 1998	"You know, I have students too who can work on their own, but I found that that doesn't work as well" (Rich, SSI#5)

What Works; Meeting Needs

> You know, I lecture more and try to do that but I still try and bring in group work and do this and it sometimes works and it sometimes doesn't work. (Scott, SSI#9)

> It's usually been a small problem. You know, while the students are doing an exercise, I'm usually able to fix things – maybe reboot the computer or maybe get rid of some junk programs – make things run more smoothly. Um, but occasionally, problems can't be fixed…On one occasion…there was a particular problem where the computer was frozen; I had to move the entire class to another classroom in order for them to make their presentations. (Martin, SSI#11)

Despite considerable debate and discussion about which teaching theories, techniques and technology to use in the classroom, teachers in the study usually made decisions based simply on their practical needs and goals. However, they did not make these decisions once and apply them in their teaching; they had to make these decisions over and over again every day in changing circumstances. This bears reiteration: teachers in the study rarely, if ever, made absolute decisions that they were able to follow without adjustment in subsequent lessons. In fact, the innate concept of lesson adjustment for teachers – made explicit in the phrase "It depends…" – was one of the most frequently found in the study (see Table 10.3).

Table 10.3
Sample Comments from the Initial Interviews Using the Expression: "It Depends…"

It depends…	
"…on what's happening at any given moment, on any given day"	Jerry, SSI#1
"…who specifically I'm talking to"	Craig, SSI#2
"…if it's a class that I'm setting up for the first time"	Val, SSI#3
"…on the class"	Russ, SSI#4
"…somewhat on the level of the students"	Rich, SSI#5
"…if there are any questions from the previous class time"	Tina, SSI#6
"…on the major!"	Sarah, SSI#7
"…on classes – actually like I was teaching different classes"	Stephen, SSI#8
"…on what I'm looking at"	Scott, SSI#9
"…on the time"	Amy, SSI#10
"…on how active the students are being"	Martin, SSI#11
"…on what I'm focusing on; like, what's the goal of the lesson or what material I'm planning on covering during the lesson"	Ian, SSI#12
"…on what kind of class"	Sophie, SSI#13

Therefore for teachers to be willing to use technology, they had to be reasonably certain that it would work in a particular class on a particular day. If teachers perceived that their lessons worked better (for any reason) without the use of technology, they did not make use of it.

Further, teachers in the study had to complete prescribed objectives within a given class time and so any mishaps not only jeopardized the entire lesson plan but also often entailed making adjustments to future lessons as well. Moreover, risks were also associated with mishaps or problems associated with technology use in terms of student perceptions and evaluations (see Section 10.4 below). Therefore any proposed technique needed to be perceived by the teacher to work in a reasonably consistent or at least predictable way.

Thus, the main external impediment to the consistent and predictable use of the classroom technology at Park University was the poor maintenance of computers and their supporting peripherals. As discussed in Section 8.5, Park University, like other universities and businesses throughout Korea, relied on the "AS" method of making repairs to broken machinery (including computers) rather than following regular preventive maintenance (hence, use of the name "AS" or "After Service"). This method proved particularly problematic for teachers owing to the inherent delay for repairs, which wasted class time and discouraged future use. This issue is discussed more in Section 8.7 on the implications of the study.

Lifelong Learning

> I wish I had that knowledge, but I don't wish that strongly enough to be able to sacrifice something else in my life to make time to do that. (Russ, SSI#4)

> I'd probably be willing to take a course in something. For example, if I was being trained for a new job or something and I needed to learn a new system then yes, I would appreciate a course in it. Usually, I learn new things because I got this thing I want to do! (Sarah, SSI#7)

As teaching with technology involved continuous adaptation and renewal, teachers who had more willingness or aptitude as lifelong learners were more likely to be regular technology users. This is similar to one of Levin and Wadmany's (2008) conclusions: "The present results show that teachers strongly believe that using ICT in the classroom is a process ultimately founded on their own internal learning processes and their knowledge transformation and commitment to professional growth" (p. 257). However, having a willingness or aptitude was only half the equation; teachers also needed to have professional opportunities for development or the time and ability to organize their own learning. As discussed throughout Chapter Eight, owing to

considerable time demands, many full-time teachers had to make decisions about their priorities and eliminate lesser objectives or priorities. Among the many demands that teachers were already facing, the choice to integrate technology carried with it a new set of professional development needs in order to sustain their progress. Kozma (2003) reiterates:

> For any classroom innovation to be successful, teachers need to learn new skills, and, equally as important, they may need to unlearn beliefs about students or pedagogy that have dominated their professional careers (Darling-Hammond & McLaughlin, 1996). In addition, ICT-based innovations have unique professional development requirements. Such support may include hands-on technology use, a variety of learning experiences, ongoing technical assistance and support, and the learning of curriculum-specific software applications (NCREL, 2002). Thus, teacher professional development is at the heart of sustaining an innovation. (p. 142)

Therefore teachers had to sustain a need for technology use which, owing to its professional development demands, was strong enough to overshadow other professional and, in some cases, personal demands. This conclusion reinforces the crucial role that the final three categories in the theory (*growing*, *living*, and *investing*) played in determining teachers' use of technology. Moreover, teachers who assigned higher priority to learning about technology often looked to Park University for support and training, but this need went entirely unmet (no technology-related training had ever been provided in the Department and only 14.3% of full-time instructors on the survey questionnaire felt that the administration generally encouraged technology use in teaching). Therefore teachers necessarily had to create their own opportunities for professional growth. However, findings from the study clearly indicate that, despite recognizing the importance of professional development (71.4% of teachers), only a minority (14.3%) of the teachers was able to find the time and opportunities to do so. These conclusions emphasize the value of studying the perceptions of individual teachers as they seek to improve their professions through the use of technology. Straub (2009) concurs:

> This article suggests that the future of adoption research should focus not just on adoption and implementation of information technology in the formal organization but how individuals understand, adopt, and learn technology outside of the formal organization…Whereas much research has been done in the past 50 years about the

> processes individuals go through to adopt and adapt to an innovation, the constant bombardment of new information technologies makes understanding the hows and whys of user technology adoption a particularly pressing issue now and in the future. (p. 646)

Research Question 3:

To what extent can Rogers' (2003) diffusion of innovations theory explain these relationships and hindrances?

Each of the six concepts from research question two that addressed the hindrances to teachers' technology integration is directly compared with Rogers' (2003) theory to highlight any similarities and differences. These six areas were: personality factors, pervious learning experiences, teaching beliefs, beliefs about technology, what works/meeting needs and lifelong learning. Owing to the complexity of relationships found in the response to research question one, general comparisons to the first part of this question are addressed below in Section 9.3.

Personality Factors

As discussed above in Section 4.2.4, Rogers (2003) specifically addressed personality variables in his theory. In the preamble to his discussion in this area, he stated that these variables "have not received much research attention, in part because of the difficulties in measuring personality dimensions in diffusion surveys" (p. 289). This recognized shortcoming in using survey questionnaires to measure personality variables (among other factors) was part of the impetus for choosing a mixed-techniques methodology in the current study and so insights in this area can contribute to Rogers' theory. However, as personality assessment was not specifically part of the original scope of the study, inquiry was quite limited and incidental (see Section 8.8).

Rogers employs ten generalizations to assert how various aspects of adopters' personalities affect their propensity to adopt. These generalizations (Generalization 7-8 through 7-17) state that earlier adopters: (1) have greater empathy than later adopters; (2) are less dogmatic; (3) have a greater ability to deal with abstractions; (4) have greater rationality; (5) have more intelligence; (6) have a more favorable attitude toward change; (7) are better able to cope with uncertainty and risk; (8) have a more favorable attitude toward science; (9) are less fatalistic; and (10) have

higher aspirations for formal education, higher status and occupations (Rogers, 2003, pp. 289-290). In the current study, seven of these ten generalizations were supported to varying degrees. A comparison of each of these generalizations as they apply to the current study findings is given below.

(1) Earlier adopters have greater empathy than do later adopters. Rogers (2003) defines empathy as "the ability of an individual to project himself or herself into the role of another person" (p. 289). This was not supported in the current study. The ability of teachers to empathize with one another did not appear to have any observable relation to their degree of technology adoption and use. Rogers (2003) emphasized the communication aspect of this variable as it is important for change agents and others interested in advocating adoption to be able to take the perspective of potential adoptees. However, no such agents or advocates existed at Park University; the social system at Park University was, in Rogers' terms, "De-centralized" (p. 394) and so teachers' decisions about technology use were "optional innovation-decisions" (p. 403). Furthermore, decisions about technology use were usually "geared closely to local needs" (p. 398) (attempts to solve personally perceived problems) rather than being based on other more social aspects.

(2) Earlier adopters may be less dogmatic than are later adopters. Rogers (2003) proposes that a "highly dogmatic person would not welcome new ideas" owing to "a set of beliefs which are strongly held" (p. 289). This was supported in the current study. Most teachers in the study held strong beliefs (particularly about their teaching) whether they were among the first to use technology or not. However, those who gave reasons for non-use usually argued more tenaciously based on their own established beliefs or perspectives rather than rational reasons.

(3) Earlier adopters have a greater ability to deal with abstractions than do later adopters. Rogers (2003) conjectures that earlier adopters need less practical example in order to imagine the possible use of an innovation while later adopters are more dependent on observations of successful use. This was not supported in the current study. Although certain later adopters did seem to be influenced by the ability to see others using technology in the classroom, their late adoption was not owing to a lack of ability to think abstractly. Rather, these teachers felt more

impetus or need from perceiving technology use to be more commonplace among teachers than they had previously believed. Thus, social pressure is the more likely explanation. Moreover, earlier adopters did not appear to be more adept at abstract thinking or conjecture than later adopters. What distinguished them in this regard was the motivation and perseverance to experiment in order to decide what worked and what didn't work. This more practical orientation directly relates to the next variable.

(4) Earlier adopters have greater rationality than do later adopters. Rogers(2003) describes rationality as "use of the most effective means to reach a given end" (p. 289). This was supported in the current study. Although many teachers were interested in the practical aspects of their teaching in terms of the materials and methods that they used, earlier adopters had a decidedly strong bias toward improving both the efficiency and the effectiveness of their teaching. For this reason, these earlier adopters were likely to make more adaptations in their teaching to improve these areas.

(5) Earlier adopters have more intelligence than do later adopters. Interestingly, Rogers (2003) does not elaborate on the meaning of this statement including which measure or aspect of intelligence best applied to the preference for adopting new ideas. This was not supported in the current study and was found to be a highly contentious implication which ignores the actualities involved in implementing technology in teaching. In the current study, teachers who chose to depend on technology in their teaching did so as a result of trial and error based on their perceptions of the need and equally important, the potential for consistent use or reliability. In this sense, it may be more valid to say that owing to the inconsistency of computer hardware and software in the classroom (from lack of maintenance), more intelligent teachers may have been the ones who chose not to rely on them in their teaching.

(6) Earlier adopters have a more favorable attitude toward change than do later adopters. This was supported in the current study. However, more accurately, earlier adopters did not have a more "favorable attitude" but rather more willingness to deal with changes (though more routine use of adaptations) in their teaching. The majority of teachers in the study viewed changes introduced externally as an extra burden which added to their workloads and affected the

consistency of their teaching. As one teacher presenting in a recent workshop meeting declared while justifying an unchanged syllabus to a sympathetic audience: "Unless I'm forced to change, I don't like to change". However, earlier adopters tended to express more willingness to accept changes and the regular use of adaptations in their teaching. That is to say, these teachers made more adaptations by choice in their teaching, so the additional introduction of changes (and the consequential adaptations) were more tolerable.

(7) Earlier adopters are better able to cope with uncertainty and risk than are later adopters. This was highly supported as earlier technology users were more risk-adverse and tolerant of contingencies that occurred in their classrooms. This finding is closely tied to attitudes toward change and adaptations. Teachers who used more technology in their teaching made more adaptations, including those with more riskier or unknown outcomes. Further, this acclimated them to handle uncertainties as a matter of course rather than preferring more settled methods and techniques.

(8) Earlier adopters have a more favorable attitude toward science than do later adopters. Rogers (2003) presumes that since innovations are the product of scientific research, earlier adopters would be "more favorably inclined toward science" (p. 290). This statement is supported, albeit in a slightly modified form. As has been noted in the literature, teachers often do not feel that teaching with technology is part of their jobs and some in English studies have even taken an "anticomputer stance" (Haas & Neuwirth, 1994, p. 326). For example, for many Korean English literature teachers in Korea, science and the use of technology are often seen as the antithesis of their calling which usually involves the "preservation and interpretation" (Haas & Neuwirth, 1994, p. 325) of classical writings and thought. Moreover, it was not uncommon during the study for teachers (both Korean and foreign) with literature training to suggest that teachers often used technology superficially (such as the use of word processing programs in the classroom as expensive surrogate chalkboards) or alternatively essentially to assert that technology use was a "radical innovation" (Rogers, 2003, p. 426) which was ill-suited to their teaching. Rogers (2003) postulates that a "radical innovation (also called a 'disruptive' or 'discontinuous innovation') is such a major change that it represents a new paradigm for carrying out some task" (p. 426). Therefore the current study supports the statement that later adopters

often base their reluctance to innovate upon implicit negative views toward science and technology in English studies. However, no correlations can be hypothesized on earlier adopters' beliefs about science.

(9) Earlier adopters are less fatalistic than are later adopters.
Adopters who demonstrated less self-efficacy were said to be more fatalistic. This was supported but only as it applies to teachers' sense of accomplishing teaching goals. Teachers who used more technology generally had more confidence in their ability to obtain goals in their teaching.

(10) Earlier adopters have higher aspirations (for formal education, higher status, occupations, and so on) than do later adopters.
This was somewhat supported for formal education and occupations, but not for higher status. Technology-using teachers sought more learning and were open to the possibility of better occupations, but they were decidedly ambivalent about status in their work.

Previous Learning Experiences; Teaching Beliefs; Beliefs about Technology
Rogers' (2003) concept of the compatibility of an innovation with adopters includes three elements: (1) sociocultural values and beliefs; (2) previously introduced ideas; and, (3) client needs for the innovation (p. 240). Under the second element, previously introduced ideas, Rogers states that "[o]ld ideas are the main mental tools that individuals utilize to assess new ideas and give them meaning" (p. 243). He goes on to warn that these old ideas can lead to misuse of new innovations or non-use in the case of previous bad experiences ("Innovation negativism", p. 245). Otherwise, Rogers does not deal directly with the issue of previous learning experiences or professional beliefs in any detailed manner. However, related more directly to beliefs about technology, Rogers discusses the congruency of a new idea using a continuum. Ideas which are very congruent to existing practice (and thus not very innovative) are placed on one end, while radical innovations (discussed above) are on the other – this is similar to Zhao, Pugh, Sheldon, and Byers'(2001) idea of technology's distance from the innovator. Later adopters are more likely to adopt more congruent ideas while earlier adopters are more open to all ideas including more radical ones. Similarly, Rogers (2003) generalizes that later adopters are more likely to discontinue innovations than earlier adopters (Generalization 5-11, p. 191). However, this all

hinges on the classification of adopter categories which are determined by innovativeness, which in turn is based on three characteristics: (1) socioeconomic status; (2) personality values; and, (3) communication behavior (Rogers, 2003, p. 287). Unfortunately, none of these characteristics deals directly with previous learning experiences or beliefs including technology beliefs.

What Works/Meeting Needs

As discussed above, teachers in the current study made decisions about their use of technology based on their perceptions of what worked. In these situations, they either perceived a need to make an adaptation in their teaching or were forced to do so by an externally-introduced change. Any adaptations that they made were then assessed to determine continued fit and success. If they felt the adaptations did not work, they made other adaptations to reach a better fit with their goals. Rogers (2003) addressed this issue in the concept of "disenchantment discontinuance", which is a decision to reject an idea "as a result of dissatisfaction with its performance" (p. 190). Many teachers in the study who did not use technology in their teaching held high regard for the quality of the classroom technology but later became disenchanted once they realized difficulties in its use. Rogers (2003) further asserts that "[t]he compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption" (p. 249). However, this concept was found to be too vague to apply to the current study. Teachers' compatibility with the uses of technology was not a matter of a simple assessment of its qualities and match to their desires; compatibility for them was a more fluid concept which changed with the flux in their goals, students, classrooms, and other variables or external changes. In this regard, more applicable to the concept of compatibility with needs were two of the biggest physical impediments found at Park University: lack of maintenance and counter-intuitive classroom technology setups. From the abundance of anecdotes in this area, it was clear that the setup and maintenance of classroom technology were not very compatible with the needs of teachers. In fact, these two issues gave the impression that no one had considered the actual use of the classroom technology when they originally chose to provide it. This is similar to Rogers' (2003) comment about a piped water program in Egypt in which he wondered "whether it was really designed with the needs of the intended users in mind" (p. 121).

Lifelong Learning

In the fourth and fifth stages of the innovation-decision process, Rogers' (2003) illustrates the difficulties involved with putting innovations to use and confirming their suitability to the adopter's needs (pp. 179-194). However, this limited portrayal discounts the importance of these stages and presents innovation decisions as somewhat static events based primarily on variables and approaches which largely ignore the adopter's day to day use. In fact, this is a general criticism of Rogers' theory as it applies to the current study: teachers who considered using technology in their teaching did not make one final decision based on economic or social factors. Again and again they had to take into consideration how the technology would help them to meet a particular classroom goal for a specific set of students, in a given classroom and on a particular day. Other than the concept of disenchantment discontinuance (discussed above), Rogers' (2003) only attempt to address this process is the notion of "active rejection", which involves trialing before deciding to reject (p. 178). However, this view equates pre-rejection use with a kind of probation period akin to test-driving a car and implies that once rejection occurs no further trials are possible. Conversely, teachers who made decisions to use technology had to reassess the decision and make adaptations repeatedly which often required learning new skills. As many teachers expressed, technology was a tool that teachers had in their toolbox but chose to use only in particular situations. This was one of the reasons that technology-using teachers frequently lamented about not having more learning opportunities available to them which would make them more aware and adept at applying various technological tools in their teaching.

10.3 "What Works" and Rogers' Theory

Overall, Rogers' (2003) theory was only moderately helpful in explaining teachers' decisions about technology use at Park University. As described above, aspects related to adopter personalities were particularly relevant to the current study, as were general concepts such as de-centralized systems, compatibility, and optional innovation-decisions. However, it was evident throughout the comparison that Rogers' theory was not well-designed for adoption decisions made by individuals who attempted to meet particular needs rather than as a consequence of influence from their peers, organizations or other change agents. The wide scope of Rogers'

theory was able to cast a net over decisions about technology made by teachers in this study, but holes in the concepts proved to make it ineffective in application. For instance, once it was determined that teachers' decisions to use technology at Park University were "optional innovation-decisions" within a "de-centralized system", a dead-end was reached. Aspects related to relative advantage and the decision making process were then explored but only certain isolated concepts seemed to apply such as "compatibility" (previously introduced ideas and client needs), "disenchantment discontinuance", "dissonance", "radical innovations", and "overadoption". However, each of these concepts ended with simple relational statements rather than providing more details related to its properties, aspects or dimensions. Similarly, the final chapter of Rogers' (2003) book on the consequences of innovations addresses concepts such as "cultural relativism" (the need to make judgments based on the values of a particular culture), the "form", "function", and "meaning" of an innovation, and "achieving a dynamic equilibrium" which are relevant to this study, but they likewise end with short, general statements which seem to have a decidedly economic viewpoint. For instance, the function and meaning of computers as tools and the difficulty in achieving a dynamic equilibrium fit Rogers' categorization in these areas, but no other aspects or classifications are offered for either.

Furthermore, by considering some of these concepts in isolation, Rogers (2003) seemed to contradict himself on certain values and the classification therein. For instance, in the area of relative advantage, Rogers (2003) stated: "The individuals' perceptions of the attributes of an innovation, not the attributes as classified objectively by experts or change agents, affect its rate of adoption" (p. 223). However, within the same section dealing with "overadoption", he seemed to say the opposite: "Most individuals perceive, or at least report, their actions as rational. Our main concern is with objective rationality in the present case, rather than with subjective rationality as perceived by the individual" (p. 232). If understood correctly, this seems to claim that the reasons given by those who adopt when experts felt that they should reject were not to be trusted as they involved "subjective rationality". Rogers (2003) disclosed that in reality, these adopters lacked enough knowledge, could not predict the consequences of using the innovation beforehand or were simply "suckers for change" (p. 232). However, if this logic is applied to the current study, all innovators and early adopters in the current study would be considered over adopters – and therefore their self-reports were not reliable. That is to say, all teachers who chose

to use technology in their teaching all lacked sufficient knowledge about the technology that they used and further, owing to external factors such as the lack of maintenance and counter-intuitive setup at Park University, they could not accurately predict the consequences of its use. There was also evidence of overadoption by "suckers for change" in certain circumstances which Rogers might just as easily classify under the effects of "observability". Therefore studies such as this which involved the perceptions of its participants could be hamstrung by Rogers' categorization system and post-positivist assumptions about the value of the self-reported and rational assumptions of participants and experts. In summary, Rogers' theory addressed many of the concepts found in the current study, but taken as a whole it lacked the ability to provide a cohesive and relevant framework on which to predict teachers' decisions about technology use. It is possible, however, that studies which begin with Rogers' theory as their framework might find better fit in similar circumstances but the problems mentioned above would likely still prove to be relevant (see Section 10.6 on the limitations of this study).

10.4 Relevant Dissertations

Wolcott (2001) suggests that one shortcoming of most dissertations is the failure to include an epigrammatic review of relevant dissertations. For this reason a very brief look at three recent dissertations that have a bearing on this study is presented.

Boulter, C. (2007). *EFL and ESL teacher values and integrated use of technology in universities in the Asia-Pacific region*. Unpublished doctoral dissertation. Brisbane, QLD, Australia: Centre for Learning Innovation, Queensland University of Technology.

This dissertation attempted to explain the extent to which ESL university teachers in non-English speaking countries employed multimedia in their teaching. A mixed-methods design was employed which included two surveys and one set of interviews. The two surveys gathered information on attitudes toward and uses of technology as well as infrastructure and dependability of resources. One hundred and seventy-nine teachers in five universities were interviewed based on the degree of constructivism in their teaching and their relation to Rogers'

(1995) adopter categories to identify the barriers to and enablers of multimedia use by ESL teachers in university courses. Results indicated that despite having adequate access to multimedia, technical support and professional technical learning, teachers made limited use of multimedia. In terms of Rogers' theory, teachers' use of multimedia was skewed toward lower use (based on Rogers' S-curve for innovativeness). Similar to the current study, complex relationships were found which affected teachers' technology use, including teacher-held educational and cultural values, teaching experience, and technology training. Furthermore, older teachers tended to use progressively less multimedia as they aged, although teachers who engaged in professional learning – regardless of age – tended to use more multimedia in the classroom. However, in contrast to the current study, teachers with more constructivist teaching methods were more likely to use multimedia in their teaching. It was also found that collaboration among teachers aided attempts to use technology.

Howard, S. (2009). *Teacher change: Individual and cultural risk perceptions in the context of ICT integration*. Unpublished doctoral dissertation. Sydney, NSW, Australia:
The Centre for Research on Computer-Supported Learning and Cognition, University of Sydney.

This dissertation followed an ethnographic methodology with mixed-techniques to assess teachers' perceptions of risk and their risk-taking behavior as they related to ICT use and educational change. Teachers at universities in Australia and the United States were first surveyed in order to select eight participants for observations and interviews. Main factors explored in the survey included teaching efficacy, computer efficacy, measures of playfulness or anxiety, and aspects of the school culture. Results portrayed teachers' perceptions of risk as governed by the balance between personal (teacher) values and cultural (school) variables – echoing the main relationship found in the "what works" theory. Teachers with more personal risk-taking habits were also found to be risk-takers in their teaching, but the majority of teachers (regardless of risk behavior) viewed the assessment of risk primarily as it related to student achievement rather than their own personal interests. Moreover, non-risk takers primarily measured the risk for student achievement through quantifiable results such as test scores, whereas risk-takers viewed risk in terms of intrinsic motivation and engagement. Overall, the relationship between teachers' roles and school expectations (based on the school's cultural type)

underpinned teachers' conceptions of technology use and educational change. Less risk was associated with technology use in the two schools in the study owing to their hierarchical cultures with more formal technology training and support.

Barnes, B. (2009). *Perceptions of students from a Korean university about the attributes of effective lecturers of English as a Foreign Language.* Unpublished doctoral dissertation. Perth, WA, Australia: Edith Cowan University.

This dissertation was based on a mixed-technique methodology which assessed students' perceptions of effective teachers in the General English Department at Park University. Student-participants from varying departments were asked to write brief essays (in Korean) about the qualities of effective English teachers in order to assess common attributes in a subsequent survey. Findings were organized around five categories (in order of importance): Rapport, Delivery, Fairness, Knowledge and Credibility, and Organisation and Preparation. Further, an overwhelming majority of students had little or no exposure to communicative language teaching before entering Park University, though they preferred more participatory styles of instruction (including the use of group work). Other findings included student expectations for teachers to incorporate "media such as movies, soap operas, pop songs, magazines…and PowerPoint" (Barnes, 2009, p. 81). Furthermore, students were "impressed by lecturers who had everything ready for class" as it "inspired students to work hard" (Barnes, 2009, p. 88). Significantly, two of the five attributes – Delivery and Organisation and Preparation – illustrated the importance that students assigned to the preparation and delivery of lessons. This suggests that teachers who experienced difficulties with technology use may have appeared unprepared or incompetent by their students. This has several implications for the current study as teachers who attempted to use technology were – unknowingly or knowingly – in danger of receiving lower student evaluations if unforeseen problems occurred. In fact, any teacher who did not handle these difficulties well may have been in danger of permanently affecting students' attitudes and motivation during the class as well: "The importance of patience in allaying fear was underscored by another respondent who wrote that an EFL lecturer who lost patience even once permanently harmed student confidence" (Barnes, 2009, p. 77). In summary, students at Park University were most concerned with the rapport between teachers and students. Among other

issues, they had high expectations about how teachers delivered their lessons, including the use of technology, but were often unforgiving in instances where teachers appeared unprepared or impatient in its delivery.

10.5 Conclusions

This study attempted to discover why only a minority of teachers chose to use technology in their teaching. Results showed that teachers were interested (to varying degrees) in ideas about the benefits of technology; however, in the final analysis, they employed it only if it consistently worked for them in the classroom. Technology use was seen by some teachers as a tool which some perceived to be essential or useful, while others felt it to be unnecessary or even unhelpful. With few exceptions, teachers who used technology did not use it in all areas of their teaching but for specific and well-defined purposes that helped to make that part of their teaching more effective, efficient, relevant or interesting. Contrary to initial appearances, teachers at Park University were found to be highly engaged with the use of technology, but usually in small, particular ways which largely lacked the overall coherence or consistency often assumed in the common view of technology-using teachers found in the literature (Becker, 2000; Cuban, 2001; Oppenheimer, 1997; Papert, 2000; Pierson, 2001; Postman, 2000; Tyack & Cuban, 2000). Similar to Zhao, Pugh, Sheldon, and Byers (2002), teachers in the current study needed to have fore-knowledge, skills, and local experience with a particular technology in order to realize its potential in their teaching. They also needed to be able to trust that the infrastructure and support in their teaching setting were reliable. However, these prerequisites were not often met, let alone realized consistently. Overall, teachers' technology-related knowledge and experience could best be described as inconsistent owing to the dearth of formal training available to them over the course of their teaching careers. Further, as teachers experimented with technology in their teaching, they came to realize serious impediments owing to the lack of maintenance of computers and supporting peripherals. As Watson (2001) found, through these negative experiences, teachers could be put off enough to believe that using technology was "not worth the amount of extra effort required" (p. 259). Additionally, while technical support was available, it did not include any pedagogical advice on how actually to use computers in

teaching. In the final analysis, teachers had to make decisions about technology use based on practical use; they had to make decisions about what worked for them in a particular situation on a particular day, including the very real possibility of added work responsibilities.

10.6 Limitations

This study had a number of limitations owing mainly to its design, exploratory nature, limited scope (and duration) and context. As there were virtually no holistic studies of technology use at Korean universities by ESL teachers, results from this study were necessarily a tentative first step toward understanding in this area. For this reason, some may consider the methodology employed and the resultant substantive theory to be too broad in scope and lacking in rigor. For instance, the three domains in the theory contain 24 different elements which are identified and exemplified but not fully interrelated or integrated as might be expected in more conventional studies attempting to posit theories. Consequently, the "what works" theory might be seen as lacking the ability to definitively predict behavior or provide explicit rules to determine teachers' fit within its processes and categories. However, this criticism is more pertinent to the restrictions and practical limitations of doctoral studies than any lack of analytical rigor in the current study. When a researcher studies a long-standing issue in a new context (which has defied all previous customary attempts at explanation and theory-building in other settings), he or she is wise to begin by first mapping the territory and laying down a solid foundation in the new context rather than hastily focusing on one area and making more definitive claims without holistic substantiation. Within the bounds of doctoral research, it would have been ideal but indeed unfeasible to attempt to bring together every loose end in the current study while still maintaining a grounded theory methodology of allowing the data to determine the course and scope of the analysis. In other words, if the current study had been restricted to a smaller scope which was then rigorously analyzed to develop a more explicit theory (which could be reduced to simple relational sentences), it would have been guilty of violating grounded theory's basic principles and in all likelihood would have proven to be as ineffective at explaining the underpinning issue as the previous studies highlighted in Appendices A and B (on pp. 295-304).

A second limitation arises from the small number of participants involved in the case study which largely followed a qualitative methodology. This is a common limitation of case study and grounded theory research which makes generalization to other settings uncertain (Greckhamer & Koro-Ljungberg, 2005; Nisbett & Watt, 1984; Riege, 2003; Shaffer & Serlin, 2004; Stark & Torrance, 2005; Stoynoff, 2004). However, by presenting a full disclosure of the steps in the collection and analysis of data, readers could better assess the decisions and framework that emerged (Goldacre, 2008; Strauss & Corbin, 1998). A third limitation involves the limited scope of the properties in the eight categories of the theory. This study followed a grounded theory methodology and so only properties, aspects, and dimensions found in the data became part of the resultant categories and substantive theory. However, when the eight categories and their properties were applied to individual teachers (in Chapter Eight), it appeared that more accuracy was needed, even though the eight categories all have strong founding in the data and are thought to be a reasonably complete picture of the processes which affected teacher decision making. Specifically, the properties which make up these categories were limited by the relatively small scope and duration of the study. This limitation can be overcome in future studies which could begin with the eight category framework and focus on exploring properties related to a single category to provide a more detailed and accurate representation.

The fourth limitation relates to the narrow role that the part-time teachers and the survey played in the study. Although not part of the initial scope of the study, issues related to the differences between full- and part-time teachers and their cultural backgrounds proved to be significant. In particular, aspects of teachers' uncertainty orientation (UO) were posited to underpin many of the disparities between full and part-time teachers which were found (see Shuper, Sorrentino, Otsubo, Hodson & Walker, 2004). Further differences between full and part-time teachers' educational backgrounds and approaches appeared to be important but were not able to be explored. As found in another study by Baek, Jung and Kim (2008), aspects related to teacher image also appear to be central to Korean faculty members and may help explain why they employ technology despite a lack of belief in its efficacy. Therefore, future research could focus on factors related to cultural differences and their effects upon teachers' decision making (see Section 10.8 below). Additionally, the survey employed in the study greatly aided the exploration of codes, relationships, and categories which led to the substantive theory but

contained a wealth of information on other topics. Data from the survey could support a number of mini-studies on various subtopics such as teacher practices, leadership, and organizational studies. Furthermore, as mentioned in Section 10.3, owing to the grounded theory methodology of this study, a complete comparison with many of the components of Rogers' (2003) theory was not possible. To provide a more accurate comparison, a future study at Park University could directly apply Rogers' theory to the setting and then compare with the current study in order to provide more insight into the usefulness of each approach. Finally, the setting and resources at Park University may be somewhat atypical for universities of a lower caliber as is often found outside of Seoul. Although classroom teaching computers and LCD projectors are becoming more common in Korea (in part owing to policies and funding such as the BK21 project discussed in Section 2.5), the high level of technology infrastructure at Park University may make direct comparisons with less highly-tiered universities difficult or in some cases impractical. As a final note, other than discussed in Section 7.4.5, no real concerns were expressed by teachers regarding their teaching of female students at Park University. However, it may be possible that issues related to teaching at a women's university were present but not discussed during the study.

10.7 General Implications

Much research into improving education is done by researchers (as opposed to teachers) and begins with a narrowly defined focus such as determining the impediments to technology use. Any tentative findings are then situated in the current literature along with limitations and suggestions for future studies. Meanwhile, teachers in classrooms in Korea and throughout the world continue to follow essentially the same practices which their teachers used to teach them decades before. Likewise, students entering classrooms today probably have much the same feelings that they have had for decades – do the work, get the grades, and if possible learn a few things that might be useful in life along the way. That is, teaching and learning take place in a world separate from the reality that students live in and will rejoin once their time at university is complete. As Lankshear and Knobel (2003) put it: "School learning is at odds with authentic ways of learning to be in the world, and with social practice beyond the school gates" (p. 31).

Korean students these days use their Smart Phones to chat with friends and view various forms of media direct from the Internet while on the way to their classrooms. Once they enter, they are often told to turn off their electronic devices, open their textbooks and listen for an hour or two to a teacher in front of a chalkboard. It is as if they are transported back to the 1950s (or earlier) whenever they enter a classroom.

The problem with this situation, as John Dewey noted in 1938, is that "[c]ontinuity and interaction in their active union with each other provide the measure of the educative significance and value of an experience" (pp. 44-45). Learning has to have relevancy to students' lives or it is not only "mis-educative" but also further encumbers real thinking:

> Instruction in subject-matter that does not fit into any problem already stirring in the student's own experience, or that is not presented in such a way as to arouse a problem, is worse than useless for intellectual purposes. In that it fails to enter into any process of reflection, it is useless; in that it remains in the mind as so much lumber and debris, it is a barrier, an obstruction in the way of effective thinking when a problem arises. (Dewey, 1910, p. 199)

In short, learning and education should be based on continuity and interaction with students' lives, not the recreation of an isolated time capsule of abstract learning. Carl Rogers further suggested in 1969 that teachers as facilitators need to make the subject matter that they teach relevant to students' lives and involve the whole learner (feelings as well as intellect). However, as found in the current study, teachers are often under tremendous pressure to perform in less than ideal conditions and so do what works rather than what they know should be done. Further, administrative policies and scrutiny at Korean universities based largely on student evaluations (and other quantifiable measures) can keep teachers from taking initiative and even lead to the acceptance of practices which teachers know are not pedagogically sound:

> It is surely not coincidental that the demand for such commitment and loyalty to corporate culture coincides with the replacement of long term employment by short term contracts for principals and teachers, no less than among other workers. Vulnerable employees may, of necessity, be more eager to display their loyalty and commitment to management visions. (Bates, 1995, p. 12)

This is not a new idea. As far back as the 1930s, school administrators "had already abandoned the notion of their role as scholars or educational philosophers and explicitly adopted business values and practices" (Engle, 2001, p. 91). However, with the pervasiveness of the Internet and new technology in society and business, the need to make education relevant to the world outside the classroom has become even more critical. The recognition and development of a new literacy for teachers and students can mean the difference between real education for empowered individuals who can navigate intelligently in the world and a pseudo-education underwritten by business leaders that fosters acquiescence rather than critical thinking. As Rudd and Tyldesley (2006) relate:

> As educators, we have no choice about inhabiting this technological environment – it is very much with us and is highly unlikely to go away. The only choice we have is whether or not to engage in our teaching with these new literacies; and, if so, how to lead children into a mature and independent literacy of their own. (p. 1)

Unfortunately, overtaxed and/or constrained educators do not often recognize the impetus to learn and teach new literacies which would enable themselves and their students to gain competence and confidence in the information era instead of being confined by business models applied to education (Akindes, 2000). They also cannot count on their universities to provide training or motivation, so teachers often need to take the initiative themselves. To do so, they can begin by investigating about and mastering manageable skills using new technology such as Rudd and Tyldesley's (2006) four new literacies for English teaching and learning:

1. The ability to find information
2. The ability to develop critical thinking and evaluate
3. The ability to re-present information in different ways for different audiences
4. The ability to use new media as a creative space (pp. 2-3)

By downplaying or ignoring the need to learn new technology and use it effectively in their classrooms, teachers are in danger of having what former United States Secretary of Education, Lamar Alexander envisioned for education occur: "designing schools that shift from a teachers/community base to central administrators, and employ technology with low-cost, non-professional classroom assistants" (Spillane & Shapiro, 1992, p. 279). Therefore, it is imperative

that educators seriously attend to and become active participants in new literacy practices based on the integration of technology. This requires substantial time and openness to the kinds of frustrations, challenges, and life-enhancing experiences that students experience in and out of the classroom – in essence, it requires teachers to become students again. As Ramsey and Fitzgibbons (2005) remind teachers: "If we are not learners, we cannot help others to learn" (p. 345). Teachers are first and foremost models of higher learning for students and so should be savvy in modern methods of learning which include the use of technology. They should seek to empower themselves through education to improve their own situation and the quality of the learning which they provide. If teachers do not learn to adapt to new literacies and allow unsound teaching circumstances to have equal weight in the decisions that they make, they run the risk of becoming trapped in an endless cycle of doing what works rather than doing what works best.

10.8 Questions for Further Research

During the course of the study, the researcher often found times when the trail of the investigation went beyond the scope of teachers' perspectives and control. Certain issues arose about the nature of technology and English language education at Korean universities that could not be easily explained. To make an analogy, these questions amount to the proverbial 500-pound gorilla in the room. Teachers and researchers wishing to improve the practice of English teaching and English teaching with technology could use any of the following questions as a basis for further exploration and development:

1. What are the real (practical, achievable) goals of English education at universities in Korea?
2. Therefore, what backgrounds and skills are necessary for language teachers to have now and in the future?
3. What role does (should) the administration have in university English education?
4. Do (should) language teachers teach current culture or an academic (abstract) culture?
5. Is (should) technology (be) a part of the culture that language teachers teach?

6. Why do many schools and universities in Korea provide teaching computers and projectors in the classroom?
7. What do (should) computers in university education represent – tools, fads, a new infrastructure, a sea change?
8. Who should be responsible for technology training and the provision and maintenance of technology in the classroom?
9. Why do teachers often continue to do what works rather than what works best in their teaching?
10. If teachers and administrations recognize the likely role of technology in education in the future, why haven't they begun to encourage its use in the classroom?
11. What can teachers do to improve their own literacy and the technology culture in their universities?

It is believed that only by addressing these larger issues can the problems of technology integration in education and second language teaching in Korea be engaged and, hopefully, resolved.

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Appendices

Appendix A: Barriers to Technology Use

Barrier	Details	Source
Misperceptions	"…those who expect to get magnificent results simply from the purchase of expensive and elaborate systems will likely be disappointed (p.10)"	Warschauer, 1996
Computers are entertainment	"Perhaps the appeal of technology is simply entertainment and diversion" (p. 210)	Shedletsky & Aitken, 2001
External constraints	None selected	Franklin, 2007
Commercial interests	"IT and language teaching make an uneasy pairing…" (Pennington, 2004, p. 26)	Engle, 2001; Glahn & Glenn, 2002; Pennington, 2004
Culture	"…the findings, particularly those relating to attitudes and aspirations, pointed to a number of 'cultural' issues which could well pose far more intractable problems" (p. 79)	Condie & Simpson, 2004
Mismatch with current education	"…*computers in schools are anathema to [educators'] notions of what schools ought to do with and for children* (Hodas, 1993, p. 14, *emphasis in original*)" (p. 485)	Granger, Morbey, Lotherington, Owston & Wideman, 2002
Mismatch between school/young people	"Gee says that '…schools are failing to acknowledge, let alone incorporate, the new and emerging social and literate worlds of young people'" (p. 180)	Kerin, 2005
Education conservative	The natural conservatism of education inhibits the marriage of language learning and ICT	Pennington, 2004
Education abstract	"Throughout educational history, pedagogy has always been aimed at the abstract level (Kintsch, 1999)" (p. 88)	Engle, 2001
Risky changes in reform	"Do we want to risk a whole generation of students?" (p. 17)	Pelgrum, 2002
Context factors	"Fang… suggested that contextual factors interfered with teachers' ability to consistently apply their beliefs in practice" (p. 29)	Ertmer, 2005
Infrastructure	"…teachers require a broad range of support (infrastructure)…" (p. 94)	Suen & Szabo, 1999
Organizational structure	"Budin (1999) pointed out that until recently, educational institutions had their priorities backwards. They were more concerned with acquiring equipment and software than emphasizing teacher development and planning" (Kotrlik &	Cuban, Kirkpatrick & Peck, 2001; Kotrlik & Redmann,

	Redmann, 2005, p. 205)	2005
Equipment	"International surveys found…'insufficient number of computers': 70%" (Pelgrum, 2001, p. 16)	Park & Son, 2009; Pelgrum, 2001
Scheduling computer time	"International surveys found…'scheduling computer time': 58%" (p. 16)	Pelgrum, 2001
Sustainability	"The main question is to what extent these innovations will prove to be sustainable in the local situations in which they were initiated" (p. 17)	Pelgrum, 2002
Cost	"Training teachers is a very expensive activity and hence often much neglected in large-scale innovations" (Pelgrum, 2001, p. 2)	Cuban, Kirkpatrick & Peck, 2001; Pelgrum, 2001
Administration	"Fragmented policies often face difficulties in implementation because of institutional bureaucracy…" (Minishi-Majanja & Ocholla, 2004, p. 201)	Minishi-Majanja & Ocholla, 2004; Pelgrum, 2001; Zhao, Pugh, Sheldon & Byers, 2002
Lack of support	"Several teachers also point out that a lack of administrative support influences their use of CALL. They state that there never seems to have enough time to prepare Internet-based materials and to incorporate CALL activities with the contents of textbooks since they are confronted by an overwhelming amount of administrative work" (Park & Son, 2009, p. 83)	Park & Son, 2009; Venezky, 2004
Policy change needed	"Norton and Gonzales (1998)…observed further that teachers and educational reformer rarely recognize that innovative uses of technology required a revision of educational policy and practice…." (p. 158)	Momanyi, 2006
Lack of rewards	"No direct relation to promotion, tenure or salary" (Shedletsky & Aitken, 2001, p. 214)	Carter & Leeh, 2001; Shedletsky & Aitken, 2001
Rewards don't include tech use	"The reward structure does not recognize faculty for integrating computers" (¶13)	Jacobsen, 1998
Teacher lack of knowledge/skills	"Our data suggest that this comprehensive understanding was a significant factor in the successful implementation of his project" (Zhao, Pugh, Sheldon & Byers, 2002, p. 491)	Condie & Simpson, 2004; Pelgrum, 2001; Pelgrum, 2002; Sheingold & Hadley, 1990; Suen & Szabo, 1999; Venezky, 2004; Zhao, Pugh, Sheldon & Byers, 2002
Lack of information on what to do/use	"In addition, there is little information available on what activities and resources computer-using language teachers employ for their professional development in computer-assisted language learning (CALL)" (Suh, 2004, p. 1040)	Park & Son, 2009; Suh, 2004
Teacher lack of skills and confidence	"Teachers need to be convinced of the value of ICT because many teachers tend to perceive themselves to be technologically incompetent and often feel deskilled and demoralized when they first begin to use computers in the classroom" (p. 25)	Lee, K., 2002; Park & Son, 2009
Independent learning unclear	"There are notions that students should be trained to learn more autonomously and to get access to and digest information more independently than has been the case	Pelgrum, 2001

	so far. However, what this means for the educational process is still rather unclear" (p. 2)	
Increased teacher workload	"When introducing ICT into the classroom, it takes a lot of effort on the part of teachers to be able to emphasize content and pedagogy, rather than the level of sophistication with hardware and technical skills" (Lee, K., 2002, p. 24)	Lee, K., 2002; Pelgrum, 2001; Windschitl & Sahl, 2002
More preparation time	"…it is also clear that faculty can expect to invest additional time preparing materials and resources when they integrate technology into teaching and learning" (¶11)	Jacobsen, 1998
Lack of time in schedule	"There was never enough time for teachers" (Granger, Morbey, Lotherington, Owston & Wideman, 2002, p. 485)	Condie & Simpson, 2004; Franklin, 2007; Granger, Morbey, Lotherington, Owston & Wideman, 2002; Park & Son, 2009
Too much curriculum to cover	None selected	Franklin, 2007
High-stakes testing	None selected	Franklin, 2007
Harder for today's teachers	"In time, of course, increasing numbers of people will enter the teaching profession already proficient in computer use. They will bring with them the technological expertise and comfort that current teachers have to learn on the job" (p. 25)	Sheingold & Hadley, 1990
Attitude toward technology		
Fear of technology	"However, Higgins and Shanklin (1992) found that fear of technological complexity was the most widespread concern among respondents in their study" (Mick & Fournier, 1998, p. 129)	Condie & Simpson, 2004; Mick & Fournier, 1998; Pelgrum, 2001; Sheingold & Hadley, 1990
Loss of image	"the fear of being made to look foolish" (Murray, 1995, as cited in Pennington, 2004, p. 14)	Norum, Grabinger & Duffield, 1999; Pennington, 2004; Shedletsky & Aitken, 2001
Loss of control	"Many thought these shifts would frighten teachers because it appears they have less control over their classrooms" (p. 190)	Norum, Grabinger & Duffield, 1999
Negative past experiences	"As noted above, early experiences tend to color later experiences, even to the extent that subsequent, contradictory information will be manipulated to fit with earlier interpretations" (Ertmer, 2005, p. 30)	Ertmer, 2005; Venezky, 2004; Watson, 2001
Tech must match pedagogy/philosophy	"…I'm not going to abandon what I think the schools want me to do with math just to incorporate technology" (Windschitl & Sahl, 2002, p. 183)	Park & Son, 2009; Venezky, 2004; Watson, 2001; Windschitl & Sahl, 2002;

		Zhao, Pugh, Sheldon & Byers, 2002
No obvious benefits	"…technology did not seem necessary in a classroom oriented toward prescribed problem sets and convergence on discrete answers" (Windschitl & Sahl, 2002, pp. 196-197)	Shedletsky & Aitken, 2001; Windschitl & Sahl, 2002
Faculty don't want development programs	"Getting teachers to want to participate in staff development programs was another hurdle mentioned" (Norum, Grabinger & Duffield, 1999, p. 196)	Norum, Grabinger & Duffield, 1999; Shedletsky & Aitken, 2001
Lack of perseverance	"While we acknowledge that teachers have varying 'thresholds of inconvenience' when it comes to using technology…" (p. 200)	Windschitl & Sahl, 2002
Ownership of online materials	Faculty don't want to put time and energy into creating materials that the university will own.	Shedletsky & Aitken, 2001
Old paradigms with tech use (teachers don't change)	"Research on instructors' uses of technology to teach ESL or literacy shows that teachers adopt new technologies but think with old paradigms" (p. 41)	Petrie, 2003
Student attitude: Unwillingness to take responsibility	"…I still struggle with students who are conditioned to a system of grades and dependency…who are reluctant to take responsibility for their own learning…" (¶11)	Jacobsen, 1998

Appendix B: Enablers of Technology Use

Enabler	Details	Source
Culture		
School/district/culture support	"…factors that have contributed to teachers' achievements....the support and collegiality they experience in their schools and districts" (p. ix)	Sheingold & Hadley, 1990
Subjective norms	"In one study, the only significant predictor of teachers' computer use was 'subjective norms', that is, expectations for computer use by influential others in teachers' lives—principals, colleagues, students, and the profession (Marcinkiewicz & Regstad, 1996)" (Ertmer, 2005, p. 34)	Ertmer, 2005
Learning culture	"Re-awakening a learning culture among the staff" (Condie & Simpson, 2004, p. 77)	Condie & Simpson, 2004; Jacobs & Farrell, 2003; Son, 2004; Wozney, Vivek & Abrami, 2006
Reflective teacher community	"*The important elements for successful implementation of ICT were…reflective practices among the teacher community and the overall support for development work in the school*" (p. 53, *emphasis in original*)	Ilomaki & Lakkala, 2004; Son, J.-B., 2004
Socialization	"More recent large-scale statistical studies of computer-using teachers have moved beyond the notion of practitioners as isolated learners and suggest that teacher learning and instructional innovation thrive in environments where there are others who are experimenting with technology" (Windschitl & Sahl, 2002, p. 168)	Son, J.-B., 2004 ; Windschitl & Sahl, 2002
Sharing	"The teachers said they needed time to talk with each other and 'share secrets" (Norum, Grabinger & Duffield, 1999, p. 192)	Granger, Morbey, Lotherington, Owston & Wideman, 2002; Ilomaki & Lakkala, 2004; Norum, Grabinger & Duffield, 1999; Son, 2004; Venesky, Windschitl & Sahl, 2002
ICT-positive atmosphere	"One important factor has been the ICT-positive atmosphere" (p. 65)	Ilomaki & Lakkala, 2004;
Recognition that ICT is necessary to know	"It also became apparent that with the acceleration in the pace of technological innovation, skills, such as problem solving with appropriate tools for learning, synthesizing information, and communicating are essential for today's students (Panel on Educational Technology, 1997.)" (Kemker, Kalaydijian & Barron, 2001, ¶ 1)	Chapelle, 2003; Healey, 2003; Johnson & Hawley, 2005; Kemker, Kalaydijian & Barron, 2001; Kerin, 2005; Kessler, 2003; Monyami, 2006; Samuel, 2001; Suen & Szabo, 1999; Suh, 2004;Tawney, 1976

The pervasiveness of ICT	"Technology touches everyone's life. As Postman (1993) suggested, technology is a 'state of culture' and a 'state of mind' that calls for a 'new kind of social order' (p. 71)" (Johnson & Hawley, 2005, p. 70)	Johnson & Hawley, 2005
Contextual factors		
Context beliefs	"…Lumpe and Chambers (2001) found that teachers' reported uses of technology-related teaching practices was influenced by their self-efficacy for teaching with computers, their context beliefs about factors that enabled them to be effective teachers, and the likelihood of those factors occurring in their schools" (pp. 34-35)	Ertmer, 2005
Likelihood of context beliefs occurring		
Technology to bridge education and home life	"One use of ICT worth exploring is the extent to which, given its presence in both contexts, it might serve to connect, perhaps literally, the two learning environments and aid the integration of formal and informal learning" (p. 81)	Condie & Simpson, 2004
Institutional flexibility	None selected	UNESCO, 2007
Gatekeepers	"Although teachers are the most important change agents at the educational work floor, what is perhaps even more important in the early stages of adopting innovations is the role played by leadership 'gatekeepers' such as school principals" (p. 3)	Pelgrum, 2001
Effort, time, support	"The results are…sobering about the effort, time and support needed to realize these accomplishments" (p. 1)	Sheingold & Hadley, 1990
Infrastructure	None selected	Suen & Szabo, 1999; UNESCO, 2007
Friendly/reliable	"…in the initial stages of ICT implementation, a reliable and user-friendly infrastructure is critical" (Venezky, 2004, p. 15)	Shin & Son, 2007; Venezky, 2004
Adequate equipment	None selected	UNESCO, 2007
Convenient access	"How can the accomplishments be realized on a wider scale?: enough technology…" (Sheingold & Hadley, 1990, p. ix)	Becker, 2000; Franklin, 2007; Sheingold & Hadley, 1990
Access to key persons	"*The important elements for successful implementation of ICT were the key persons (an appreciated ICT teacher, a devoted principal, and a group of innovative teachers*)…" (Ilomaki & Lakkala, 2004, p. 53, *emphasis in original*)	Ilomaki & Lakkala, 2004; Norum, Grabinger & Duffield, 1999; Windschitl & Sahl, 2002
Timely tech support	None selected	Franklin, 2007; Shin & Son, 2007; UNESCO, 2007
Training opportunity	"Technology-related training plays a crucial role in developing teachers' competency with computer applications (Gilmore, 1995) as well as influencing teachers' attitudes towards computers (Becker, Ravitz, & Wong, 1999)." (p. 175)	Suen & Szabo, 1999; Wozney, Vivek & Abrami, 2006
Just-in-time training/Coaching	An ongoing "coaching approach" to ICT training which is supposed to result in	Granger, Morbey, Lotherington,

	more transference to the classroom.	Owston & Wideman, 2002;
Hands-on training	"King (2003) found that adult teachers need to have hands-on technology training that will facilitate positive changes in teachers' interest in exploring and using technology in teaching" (p. 203)	Kotrlik & Redmann, 2005
Administration		
Change fundamental views on teaching	"As Hanna (Hanna & Associates, 2000) notes, 'the challenge is not simply to incorporate learning technologies into current institutional approaches, but rather to change our fundamental views about effective teaching and learning and to use technology to do so' (p. 61)" (Glahn & Glenn, 2002, p. 781)	Glahn & Glenn, 2002; Kerin, 2005
Slow change	Changing beliefs and behaviors takes time because "translating theory into practical application" is difficult (Jacobs & Farrell, 2003, p. 24)	Balanskat, Blamire & Kefala, 2006; Ertmer, 2005; Jacobs & Farrell, 2003; Venesky, 2004; Zhao, Pugh, Sheldon & Byers, 2002
Leadership expectations	"The leadership factor was comprised of the variables over which school site and district administrators typically have control" (p. 278)	Franklin, 2007
ICT policy	"We also recognized that ICT policy is fundamental for the development of ICT resources and infrastructure" (Minishi-Majanja & Ocholla, 2004, p. 204)	Minishi-Majanja & Ocholla, 2004; Momanyi, 2006; UNESCO, 2007
Political/financial commitment	None selected	UNESCO, 2007
Incentives	None selected	Franklin, 2007
Program flexibility	"Lecturers showed a willingness to adapt curriculum and teaching approaches to meet the needs and interests of their students; however, the nature of the degree program provided little flexibility for this to occur" (¶ 98)	Sheard & Carbone, 2007
ICT used for goals not ends	"Additionally, we found that successful implementation of classroom technology was more likely to occur when teachers viewed technology as the means to an end, rather than an end itself, and when they saw an intimate connection between technology and the curriculum" (p. 492)	Zhao, Pugh, Sheldon & Byers, 2002
Curriculum changes	"Kress argues for a 'curriculum that focuses above all on giving students a full awareness of how to achieve their goals in contexts of their social and personal lives'" (p. 177)	Kerin, 2005
Integrated co-teaching in timetable	"Co-planning and co-teaching, timetabled into the school schedule, are cited by everyone as crucial factors…" (p. 482)	Granger, Morbey, Lotherington, Owston & Wideman, 2002
Teacher empowerment	"In general, the findings support the conclusions made by Szabo & Schwarz (1997) which stated that in addition to training, teachers require a broad range of support (infrastructure) and the ability to adopt the innovation to unique needs (a form of empowerment) (Tyack & Cuban, 1995)" (p. 94)	Suen & Szabo, 1999

Teacher freedom in curriculum (to work out glitches, etc.)	"Time to deal with hardware and software glitches and personal time to plan and reflect was also requested" (Norum, Grabinger & Duffield, 1999, p. 192)	Becker, 2000; Lee, K., 2002; Norum, Grabinger & Duffield, 1999
Teacher knowledge/skills		
Teacher adequately prepared	"When introducing ICT into the classroom, it takes a lot of effort on the part of teachers to be able to emphasize content and pedagogy, rather than the level of sophistication with hardware and technical skills" (Lee, K., 2002, p. 24)	Becker, 2000; Franklin, 2007; Lee, K., 2002
Professional development	None selected	UNESCO, 2007
Attend workshops	"More than three fourths of the teachers had participated in workshops or conferences (*n*= 90, or 88.21%)…" (p. 213)	Kotrlik & Redmann, 2005
Minimum skills	"An additional feature of schooling context can be found in one of the Finnish reports, which suggests that technical support and teacher ICT skills might compensate for each other: strong technical support for teachers reduces the need for strong teacher ICT skills" (Venesky, 2004, p. 14)	Shin & Son, 2007; Venesky, 2004
Matching skills	"The project required an elaborate technological setup…However, Jeff had extensive knowledge about the various technologies involved in this complex project" (Zhao, Pugh, Sheldon & Byers, 2002, p. 491)	Shin & Son, 2007; Zhao, Pugh, Sheldon & Byers, 2002
Multi-taskers	"In particular, they found that frequent computer and Internet use appear to be related to teachers'…(b) organizing multiple, simultaneous activities during class time" (p. 169)	Windschitl & Sahl, 2002
Self-taught knowledge	"…almost three fourths were self-taught (*n*= 70, or 73.5%)" (p. 213)	Kotrlik & Redmann, 2005
Experiences as student	"A number of studies have shown that educators' perceptions of their students as learners influence their understanding of teaching roles and responsibilities" (¶ 3)	Sheard & Carbone, 2007
Can relate tech to pedagogy	"…the few teachers who do use computers in their classrooms tend to be those who can clearly relate the use of technology to their pedagogic strategy for their own subject" (p. 259)	Watson, 2001
Knowing what works in ….implementation	"However, our observations suggested that an additional dimension of technology proficiency plays and equally important part: knowledge of the enabling conditions for a technology – that is, knowing what else is necessary to use a specific technology in teaching" (p. 489)	Zhao, Pugh, Sheldon & Byers, 2002
Teacher personality and attitudes		
Enthusiastic teachers	None selected	UNESCO, 2007
High self-efficacy	"…Lumpe and Chambers (2001) found that teachers' reported uses of technology-related teaching practices was influenced by their self-efficacy for teaching with computers…" (pp. 34-35)	Ertmer, 2005

Socially savvy	"Our analyses suggest that socially savvy teachers were more likely to implement their projects successfully" (p. 494)	Zhao, Pugh, Sheldon & Byers, 2002
Creative imagination	"Whether we embark, like a *Star Trek* adventure, into new and uncharted realms of teaching and learning that transform schooling, or circle again and again over the already explored terrain of traditional education, is a function not of the power of ICT but of our creative imagination" (p. 20)	Venesky, 2004
Teacher willingness to change	"The teachers' willingness to learn and change appears to be a critical element in this process" (p. ix)	Sheingold & Hadley, 1990
Teacher comfort in changing roles	"The resultant shift in teacher-student boundaries has significant implications for the understanding of teacher professional development. But this shift requires teacher comfort and confidence – one of many individual characteristics contributing to successful ICT implementation" (p. 483)	Granger, Morbey, Lotherington, Owston & Wideman, 2002
Teacher willingness to take on risks/responsibilities	"…it is also clear that faculty can expect to invest additional time preparing materials and resources when they integrate technology into teaching and learning" (Jacobsen, 1998, ¶ 11)	Jacobsen, 1998; Norum, Grabinger & Duffield, 1999
Willingness to admit ignorance/learn in front of students	"…engaging in learning in front of students rather than presenting oneself as fully knowledgeable" (p. 175)	Windschitl & Sahl, 2002
Teacher motivation/ commitment to learning	"…these teachers are motivated by their own professional growth and derive 'personal gratification from the learning of new skills'" (p. 20)	Sheingold & Hadley, 1990
Experimental approach to teaching	"They seem to take a flexible, even experimental, approach to their teaching with technology" (p. 17)	Balanskat, Blamire & Kefala, 2006; Sheingold & Hadley, 1990
Teacher modeling	Teachers need to model life-learning for students and teach how to evolve personally in life	Jacobs & Farrell, 2003
Personal beliefs/constructivist beliefs	"The evidence presented in this chapter seems to suggest that the use of ICT tends to take place in situations in which a somewhat higher emphasis is placed on learner-centered approaches" (Pelgrum, 2002, p. 11)	Becker, 2000; Jacobs & Farrell, 2003; Pelgrum, 2002; Windschitl & Sahl, 2002
Positive attitude toward technology	"To Carol the laptops represented an age-appropriate 'hook' akin to the information-rich encyclopedias that had captured her own imagination as a child" (Windschitl & Sahl, 2002, p. 177)	Park & Son, 2009; Windschitl & Sahl, 2002
High value placed on technology	"Technology touches everyone's life. As Postman (1993) suggested, technology is a 'state of culture' and a 'state of mind' that calls for a 'new kind of social order' (p. 71)" (Johnson & Hawley, 2005, p. 70)	Johnson & Hawley, 2005; Wozney, Vivek & Abrami, 2006
Expectation of success	None selected	Wozney, Vivek & Abrami, 2006

Low perception of cost	None selected	Wozney, Vivek & Abrami, 2006
Philosophical		
Ed philosophy debate	"I argue that we need to re-frame the ideas of intervention itself away from the technological model. What is needed is an intervention of educational philosophy and debate" (p. 263)	Watson, 2001
Interpreting/understanding tech	"Realizing how we interpret the significance of our classroom technologies will become as essential as knowing how to turn them on" (p. 42)	Petrie, 2003
None	"The reader should be aware that 20 years of research have not yet provided a recipe that has led to a large-scale integration of ICT in the lesson practices of teachers" (p. 2)	Pelgrum, 2002

Appendix C: Research Participation Letter

Letter of Request to Participate in the Study **March 1, 2007**

Dear teacher:

This letter is to kindly request your permission to participate in a research project being undertaken in the General English Department of Park University on teachers' perceptions and uses of technology in the classroom. The study's main intent is to explore how best to support teachers in their teaching through the use of technology. This study will use survey questionnaires, interviews, and observations to help illustrate how teachers approach and teach English at universities in Korea. Most teachers will need only to take part in an informal interview and fill out one survey questionnaire. A selected few (approx. 5) will be asked to take part in a more in-depth study which will include interviews and observations during the fall semester.

All information you provide on the survey questionnaire will be anonymous using a code name of your choosing and known only to you. This code word will be used only to match-up information if you take part in the subsequent in-depth study in the fall semester. Those participating in the in-depth study will be given pseudonyms that will be used in the write-up of the study results. Confidentiality of all information will be strictly maintained throughout the research, and will in no way affect your position or standing at Park University.

It is hoped that the study will provide valuable insight into how classroom technology at Korean universities affects teachers and their teaching. In addition, the study will consider teachers' perceptions of supplemental online resources such as the University website, the administration page and the Department homepage.

If you have any questions at any time during the research, including background, methods or time tables, please do not hesitate to contact me by email: thomaswebster@park.ac.kr*****, or during my office hours in room 104 in the Education building. Upon completion of the study, results will be made available through the Department office, or by request at the above email.

In the event that you have any complaint or concern about the way you have been treated during this study, or if you have any query that the researcher or supervisor has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee c/- Office of Research and Higher Degrees, Second Floor, B Block, The University of Southern Queensland, Toowoomba 4350, Queensland, Australia. Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

Thank you for taking part in the study,
Best Regards,

Thomas E. Webster
PhD Candidate
University of Southern Queensland *****Email address includes pseudonym

Appendix D: Initial Interview Questions

(Each interview will take approximately 45-60 minutes and will be recorded with an MP3 recorder. The following list of topic categories and questions will serve to guide the interview only in a general sense. Participants will be enabled and encouraged to digress, elaborate, or even direct the course of the interview. Questions will evolve from interview to interview as insights, concepts, and categories emerge from the analysis.)

Professional background
How long have you been living in Korea/Seoul?
Have you taught/Do you teach at other schools?

Beliefs about Koreans/foreigners/students
Park University students are _____. Park University students aren't _____.
What motivates you to do things in Korea?
How do you usually make decisions in Korea?

General beliefs about teachers/teaching
What usually motivates your teaching decisions? Can you give an example?
Why or how did you decide to become a teacher?
What is your teaching style/philosophy?
How do you make lesson plans?
How could you be more successful as a teacher?

Thoughts about schedule/time management
How do you feel about your work week? Do you feel you have a good work schedule?
What would you change about your schedule?

Park University, the Department office and faculty
How do the resources at Park University compare with other universities you have taught at or know about in Korea/Seoul?
Is there any area that could be improved? How?
Is there anything that could be improved in the Department in terms of assistance/support?

Computer knowledge and beliefs
Have you ever received any formal training in using any technologies, including computers?
Do you like using computers?
How often do you use computers?
Would you like to learn more about computers?

Use of technology in teaching
What resources in the classroom do you usually use (chalkboard, OHP, computer, CD/DVD player, etc…?).

Do you give homework or assignments where students are expected to use technology such as the above?

Comparisons of technological resources

What is the difference between:
The Department homepage
The Park University website
The Park University administration site?

Thoughts on the future of education

What skills will teachers need in the future?
What skills will students need in the future?
What would you like to happen in the future?
Is there anything I didn't ask? (The purpose of this interview was to understand how and why you use the resources that you use in the classroom. So, is there anything that I've left out or can you summarize your perspective on this for me?

Appendix E: Classroom Observation Notes

Do you want to encourage use?

...ion of ...ctionary ...al monies ...ext to "actually "usability" instead of memory (ad use?) – This is communicative in nature.

(Issues of choice – directly from efam / nif / related?)

Video choice reason – vocab?

How much time on handout?

word file for syllabus – other ... files "open source" ... decisions which to ...?

Defining advantage to phone dict. — Many pair sharing dictionaries – Just about half have dictionaries – are using cellphone.

5:34 T looks from front.

5:37 Some S finish, T gives "2 min" warning – T suggests pre-reading video. S asks if Vocab from part I are used in Part II – T confirms.

How long to choose video? where? — 5:38 T says play video one time and then again.

5:41 T "I'll give you a few minutes and then I'll play it again." (one S leaves classroom)

5:43 T adjusts screen – (S. comes back)

5:44 T plays video again.

access on video? — 5:47 T closes video T "I'll give you 2 more min" T breaks down audio speakers

again, – why use? your own? — 5:48 T adjusts screen functions S... (late)

5:50 T collects efam papers. T "Don't worry – only 5 points" "We have 25 minutes, you can ask me Qs or work in groups". One S asks Q.

open to have freedom / release after efam? — 5:55 T continues w/ Same S. – many S not on task

5:57 2nd S has Q

6:00 T finishes 3rd & 4th S asks Qs.

6:02 T opens file of text – T shows Q to all S – "many S ask".

T "..."

Appendix F: Technology in Teaching Survey Questionnaire (TIT)

Technology in Teaching Survey Questionnaire

All data collected in this questionnaire will be for research purposes only. Individual responses will remain strictly anonymous. Please choose a one-word code name that in no way identifies you (such as "red", etc.)—this will be used by the researcher only to match information with those taking part in the case study. Thank you for taking the time to complete this survey questionnaire.

Name: _____ (One word code such as "red", etc.)	Language fluency: ☐ English ☐ Korean	Number of years teaching: 0-5 ☐ 6-10 ☐
Sex: Female ☐ Male ☐	☐ Other	11-15 ☐ 15+ ☐
Age: 20-30 ☐ 31-40☐ 41-50☐ 50+☐	Status: Full-time ☐ Part-time☐	Highest degree obtained: Bachelors ☐ Masters ☐ Doctorate ☐

Section 1: For each statement below concerning your ***background and teaching beliefs***, put a (**√**) next to each sentence to show that you: **SA**-strongly agree, **A**-agree, **D**-disagree, **SD**-strongly disagree, or **U**-are undecided. There are no right or wrong answers.	**SD**	**D**	**U**	**A**	**SA**
1. I find it stimulating to be original in my thinking and behavior.					
2. I usually am the first to try something new.					
3. I am reluctant to adopt new ideas until I see other people using them successfully.					
4. I enjoy solving puzzles or complex issues.					
5. I prefer to work on projects in teams.					
6. Other people see me as daring, rash or venturesome.					
7. I like new ideas, but generally take a long time to adopt them.					
8. Other people often seek my advice when making decisions.					
9. Others describe me as a very social person.					
10. I often seek out new information even if I cannot immediately use it.					
11. I have received computer training from one or more of my workplaces.					

12. I have taken courses on how to use computers or computer programs.					
13. Students learn best in pairs or small groups.					
14. It is important for lessons to match real life experiences as much as possible.					
15. Teachers are more effective when they choose their own materials and syllabuses.					
16. The Korean education system is out-dated and ineffective at teaching English.					
17. I never follow a written lesson outline in class.					
18. I prefer to use many handouts in class.					
19. Administrative decisions hinder my teaching.					
20. Vocabulary is the most important aspect of my lessons.					
21. When the grades of students improve, it is usually because their teachers found more effective teaching approaches or methods.					
22. I don't think student-centered teaching works at Park University.					
23. I often learn teaching techniques from other teachers.					
24. I usually center my lesson plans on activities rather than lectures.					
25. It is impossible for students to achieve significant results during one semester of learning.					
26. It is important for me to be able to reuse lesson plans and materials.					
27. The best use of class time for students is interactive practice activities.					
28. Once I have taught a lesson plan, I am unlikely to make significant changes in that plan.					
29. I like to try new things in my classroom teaching.					
30. I work harder now than at my former teaching positions.					

Section 2: For each statement below concerning ***teaching in the Department at Park University***, put a (**√**) next to each sentence to show that you: **SA**-strongly agree, **A**-agree, **D**-disagree, **SD**-strongly disagree, or **U**-are undecided. There are no right or wrong answers.	**SD**	**D**	**U**	**A**	**SA**
1. I am satisfied with my salary and benefits at Park University.					
2. I am happy with my schedule and working hours.					
3. I feel a lot of pressure to perform well as a teacher in the Department.					
4. The rehiring process in the Department is fair and reasonable.					
5. I feel secure in my position in the Department.					
6. I am happy with the resources available at Park University.					
7. Teachers in the Department are well-informed of how to use the resources available to them.					
8. The English curriculum at Park University is consistent with my teaching beliefs.					
9. My main goal in teaching at Park University is to build confidence in the students.					
10. I would prefer to teach all my classes in one classroom.					
11. I prefer teaching in reading-based ESL programs such as the one used in the Department.					
12. The choice of textbooks in the Department is effective and matches the students' needs.					
13. The Department would be more efficient with a teacher-coordinator from Department in charge.					
14. The Department needs more policies to help teachers to better coordinate their teaching.					
15. The Department should provide regular weekly or monthly workshops which include computer training.					
16. Decisions by the administration often seem arbitrary or counterproductive.					
17. The directors of the Department are well-informed before making decisions.					

18. I believe many decisions which affect my teaching are made for political reasons.					
19. The Department seems less organized today than in the past.					
20. It is a good idea for the director of the Department to change every two years.					
21. Consistency is a serious problem in the Department.					
22. The Department teaching assistants are competent and well-trained.					
23. The Department teaching assistants' English ability is sufficient and never hinders communication.					
24. Park University students are independent, and can work on their own.					
25. Students at Park University are too obsessed with getting high grades.					
26. My English one and English two students are highly motivated to study in my class.					
27. The number of students in my classes hinders my teaching.					
28. The number of desks in the classrooms hinders my teaching.					
29. My English three or four classes are more suitable for the use of computers for teaching than my English one or two classes.					
30. I provide students with copies of all my classroom handouts on a website (such as the Park University site or other).					
31. Other than the mandatory listening component in some classes, I usually require my students to visit a website as part of the requirements in my class.					
32. I have used Word processing document computer programs as part of my lectures.					
33. The Park University site is useful and effective.					
34. Due to the recent monitoring of the copy machine, I cannot make as many copies as I would like.					
35. I would like to use computers more in my teaching, but do not have enough time to redesign my lessons.					

36. I would like to have regular weekly or monthly teacher meetings.					

Section 3: For each statement below concerning ***your beliefs about computers and technology***, put a (√) next to each sentence to show that you: **SA**-strongly agree, **A**-agree, **D**-disagree, **SD**-strongly disagree, or **U**-are undecided. There are no right or wrong answers.	**SD**	**D**	**U**	**A**	**SA**
1. I feel comfortable using computers.					
2. I think that using computers improves the quality of teaching.					
3. I am anxious about using computers in the classroom.					
4. I think learning to use computers is easy for me.					
5. Using computers promotes constructivist learning styles.					
6. Computer use increases my usual workload.					
7. I like to use technology in my life (computers, cellular phones, etc.).					
8. I like to use the computer to play games or chat with friends or colleagues.					
9. Anything that computers can be used for, I can do just as well some other way.					
10. Using computers helps me organize and access lesson plans and materials.					
11. I am likely to use computers in my lessons in the future.					
12. I regularly use email to communicate with my students.					
13. Computers significantly aid communication between students and teachers.					
14. Students enjoy using computers to learn English.					
15. Computer use has a negative impact on student interaction.					
16. My students know more about using computers than I do.					
17. I think that computers can help give shy students an equal chance to participate.					
18. Using computers generally shortens students' attention spans.					
19. My students expect me to use computers for instruction.					

20. Computers are changing the skills that students need to know in order to succeed in life.					
21. All teachers will one day have to use computers for instructional purposes.					
22. Teachers who do not use computers as part of their lessons are at a disadvantage.					
23. I sometimes seek advice from other teachers about how to use computers for educational purposes.					
24. I am more likely to incorporate computers in my teaching when designing a new class.					
25. I am more likely to use pre-made computer materials and lessons in my teaching rather than develop my own materials.					
26. I can depend on the computers and other resources in the classroom.					
27. The computers and other resources in the classrooms at Park University have always worked when I needed to use them.					
28. Using computers restricts my movement in the classroom.					
29. I like using the chalkboards in the classroom.					
30. I don't' use some computer programs and software at Park University because they are written in Korean.					
31. I would like to use more computer programs and software, but they seem too difficult to learn.					
32. Using computers and LCD projectors in the classroom makes students sleepy.					
33. Viruses and other unnecessary software hinder my use of the classroom computers.					
34. When I have a computer problem, I seek help only after first trying to solve it myself.					
35. I like to use computers to give writing tutorials in class.					
36. PowerPoint is often used superficially by students and teachers.					
37. PowerPoint restricts how teachers can teach their lessons.					

38. PowerPoint lessons are too businesslike.					
39. Computers and LCD projectors are an essential part of the classroom resources.					
40. The administration encourages teachers to use computers in their teaching.					

Section 4: For each statement below concerning ***professional development and the future***, put a (**√**) next to each sentence to show that you: **SA**-strongly agree, **A**-agree, **D**-disagree, **SD**-strongly disagree, or **U**-are undecided. There are no right or wrong answers.	**SD**	**D**	**U**	**A**	**SA**
1. I am satisfied with my teaching knowledge and qualifications.					
2. I regularly attend conferences and other teacher development opportunities.					
3. I am careful to stay up-to-date on new English teaching methods.					
4. Professional development is very important for English teachers in Korea.					
5. I hope to be an administrator (e.g., director, manager) one day.					
6. I hope to change careers one day.					
7. I would like to be a teacher-trainer one day.					
8. I feel the methods that I use in my teaching are effective.					
9. English teaching methods will change a lot in the future.					
10. Changes in education need to be made gradually.					
11. Teachers will one day be required to teach classes online.					
12. The skills that English teachers need in order to be successful will not significantly change in the next 20 years.					

Section 5: For each of the items below, put a (**V**) in the columns on the left to indicate your ***current level of technology use*** for **instructional purposes** (lesson preparation, lesson delivery, evaluation, communication and administrative record keeping), and put a (**V**) in the columns on the right to indicate your ***level of expertise*** in using each of the items. Use the following explanations on the left to rate your level of use and expertise.

Rarely: Once or twice a semester ***Sometimes:*** About twice a month ***Often:*** About once a week ***Very often:*** Almost everyday ***Beginner:*** Learning basic functions ***Intermediate:*** Confident with basic functions ***Advanced:*** Using most functions ***Expert:*** Confident in using most functions and able to teach others	**Level of current use**					**Level of expertise**				
	Never	**Rarely**	**Sometimes**	**Often**	**Very Often**	**No Experience**	**Beginner**	**Intermediate**	**Advanced**	**Expert**
1. Overhead Projector (OHP)										
2. CD Player										
3. CD-ROM and DVD player for in-class use of multimedia										
4. Presentation software (e.g., PowerPoint)										
5. Word processing (e.g., creating, storing, retrieving, printing electronic text.)										
6. Spreadsheets (e.g., Excel, manipulating/organizing numbers)										
7. Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols)										
8. Department website materials (downloading, uploading, messaging)										
9. Park Univ. site (English or Korean side)										
10. Internet content (e.g., browsing, surfing, searching)										
11. Email (e.g., sending and receiving electronic messages)										
12. Website design (e.g., FrontPage, Dream Weaver, Korean software)										
13. Windows Operating System										
14. Other Operating Systems										
15. Programming languages										

Section 6: Put a (**V**) to indicate the ***extent*** to which you think the following factors ***limit your use*** of computers for instructional purposes.	Not at all	Rarely	Sometimes	Often	Very often
1. Not enough computers					
2. Outdated computers and other hardware					
3. Outdated/Incompatible software					
4. Lack of maintenance/technical support of computers					
5. Lack of instructional software					
6. Internet not accessible/inconsistent					
7. Lack of department support on how to use computers					
8. Lack of training in the use of computers					
9. Lack of time					
10. Lack of need					
11. Please write other:					
12. Please write other :					

This is the end of the survey questionnaire. I would like to thank you very much for your time and effort in providing your information. Please check to make sure that you have responded to all the items and return the survey questionnaire to my mailbox on the second floor (Thomas Webster). Take care and have a great rest of the semester.

Appendix G: Common Related Survey Questionnaire Instruments

Attitude Instruments

Teachers' Attitudes Toward Computers (TAC) (Christensen & Knezek, 1998) is a 95-199-item Likert/Semantic Differential Instrument for measuring teachers' attitudes toward computers on 7-20 constructs.

Teachers' Attitudes Toward Information Technology (TAT) (Knezek & Christensen, 1998) complements Teachers' Attitudes Toward Computers Survey to provide assessment in New Information Technologies (electronic mail, multimedia, the World Wide Web, teacher productivity, and classroom productivity for students). It is constructed primarily from semantic differential items.

Skill/Competency Instruments

Technology Proficiency Self-Assessment (Ropp, 1999) measures educator proficiency in electronic mail, the World Wide Web, Integrated Applications, and Teaching with Technology.

Technology in Education Competency Survey (Christensen, 1999) is a self-assessment rating form covering teacher competencies in nine major areas addressed by the National Council for the Accreditation of Teacher Education (NCATE) standards for the USA.

Level of Proficiency Instruments

Stages of Adoption (Christensen, 1997) is a self-assessment instrument of a teacher's level of adoption of technology.

Level Of Use (Griffin & Christensen, 1999) is a self-assessment instrument adapted from the Concerns-Based Adoption Model (CBAM) Level of Use designations for adoption of an educational innovation.

(Adapted from Knezek, Christensen, Miyashita & Ropp, 2000, p. 4)

Appendix H: Survey Questionnaire Introduction Email

Letter of Request to complete survey questionnaire
October 24, 2007

Dear teacher:

As you may know, I am conducting a research project in the General English Department of Park University on teachers' perceptions and uses of technology in the classroom. The study's main intent is to explore how best to support teachers in their teaching through the use of technology.

After extensive interviews conducted over the summer, I have compiled a survey which reflects the information provided regarding teachers' perceptions and uses of technology here in the general English Department. I am now kindly requesting that you complete this survey and return it within two weeks to my mailbox on the second floor (in the hall in front of the Department office).

I greatly appreciate your time and effort in completing this survey and wish that we could meet for coffee or lunch to discuss your opinions further. However, this is not possible due to the need for anonymity. For this reason, I am including five-thousand won which I hope you will use to buy yourself a coffee or perhaps a light lunch after completing the survey as I would for you if we were able to meet.

You are absolutely under no obligation to complete the survey. I hope though, that you will feel as I do that only through consideration of our teaching situation can we hope to improve both as teachers and as mentors for our students.

All information you provide on the survey will be anonymous using a code name of your choosing and known only to you. This code word will be used only to match-up information for those already taking part in the in-depth study. Confidentiality of all information will be strictly maintained throughout the research, and will in no way affect your position or standing at Park University.

If you have any questions at any time during the research, including background, methods or time-tables, please do not hesitate to contact me by email: thomaswebster@park.ac.kr*, or during my office hours in room 104 in the Education building. Upon completion of the study, results will be made available through the Department office, or by request at the above email.

In the event that you have any complaint or concern about the way you have been treated during this study, or if you have any query that the researcher or supervisor has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee c/- Office of Research and Higher Degrees, Second Floor, B Block, The University of Southern Queensland, Toowoomba 4350, Queensland, Australia. Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

Thank you for taking part in the study,
Best Regards,

Thomas E. Webster
PhD Candidate
University of Southern Queensland

*Email address includes pseudonym

Appendix I: Initial Code List

HU: thesis
File: [C: \thesis\Atlasfiles.hpr5]
Edited by: Thomas
Date/Time: 08/02/07 02:37:21 PM
Code-Filter: All
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a balanced view
academic vs. practical teaching
activities in class
adapting classes and materials
afterschool work
amount of class work
attached to the computer
attitude toward tech and change
authentic language issues
available resources use
backup in tech
bad apple teachers
benefits of repetition
chalk board use
chalk is bad
chalk is old-fashioned
class goals
class organization techniques
close family relations
contact hours in language learning
cultural empathy
cultural isolation
Department
Department site functions
department=academic learning
desire to learn technology
different perspective of foreigners in Korea
efficiency/effectiveness
email communication with students
English is not everyone's cup of tea
exam issues
experimentation with technology
family life central
foreign language study experience
foreigners vary in extremes
freshmen issues
goofy handwriting
grouping of resources
guys learn from military
hesitation to lead
huge classes at Park University
importance of qualified leaders
in limbo
influence of available resources
influence of others
international family
international students struggle
job satisfaction
Korean education issues
Korean EFL inferiority
Korean language issues
Koreans can go to extremes
Koreans have fiery sentiment
Koreans more open than other Asians
Koreans oblivious
labor of leadership
lack of computer ability
lack of need for technology
language study informs teaching techniques
leadership and administration issues
leadership experience
liberals abound abroad
low-level student issues
maintenance issues
major effects
more variety of students before
multi-Korean school experience
need
need for training
no formal computer training
OHP experience
online resources for admin use
oppressive atmosphere
pair work
Park University and students better
Park University student issues
Park University students competitive
Park University students vary with major
Park University site use
peer guidance
personal goals
personality
photocopy dictum effects
physical classroom considerations
PowerPoint issues
PowerPoint works
pre-leadership experience
preparations for class
pretty manageable
reasons for becoming a teacher
relief from leadership
resource availability
resource trouble
restructuring
seeking training and knowledge
small classes=intimacy with students
specialized computer experience

student need for tech in future
student report
student-centered beliefs
students' non-tech future
TA issues
teacher community important
teacher image
teacher leadership
teachers accommodated
teachers' need for tech in future
teaching based on learning experiences
teaching beliefs
teaching children experience
teaching experience
teaching experience international
teaching knowledge
teaching restrictions
tech 2.0
tech assistant works
tech complicated
tech knowledge bitsy
tech personal use
tech requirement for students
tech resistance and issues
tech savvy students
tech training and experience
tech use in teaching
tech works
tech-friendlies
the Department site is "kind of useless"
the need factor
time
turnover
university preference
vocabulary focus
writing vs. computer

Appendix J: Survey Questionnaire Results

Response Key:	
Percentages given in black:	Combined response rates from both full and part-time instructors (not given when responses contradicted each other).
Percentages given in green:	Full-time instructors' response rates.
Percentages given in blue:	Part-time instructors' response rates.
Percentage boxes shaded in light tan:	Negative responses to the item.
Percentage boxes in shaded in light blue:	Contradiction between full and part-time responses.

Gender 1. Males and full-timers are more likely to think the Korean education system is outdated and ineffective. 2. Males and full-timers think it is more important to be able to reuse materials. 3. Female Ts work harder now than at previous jobs. 4. Female Ts are more likely to prefer reading-based programs. 5. PTs (females) are more likely to think that computers do not do unique skills. 6. PTs (females) don't think tech is changing the skills Ss need to succeed. 7. PTs (females) believe the admin supports the use of tech. 8. PTs (females) attend more conferences and stay up-to-date. 9. Female Ts use spreadsheet programs more than male Ts. 10. PT (females) Ts know more about the dept site and use it more. 11. PTs (females) perceive time as a bigger barrier to tech use than male Ts.	76.5% Female 32.5% Male 42.9% Female 57.1% Male 100% Female
Language fluency 1. Ts with more language fluency think that students improve with Ts being more effective.	61.8% One language 38.2% More 71.4% One lang. 28.6% More 55% One lang. 45% More
Number of years teaching 1. Ts with more experience are more likely to have higher degrees. 2. More experienced and older Ts don't think tech increases workload or younger Ts do. 3. Older/more experienced Ts know less about graphics.	23.5% 0-5 26.5% 6-10 23.5% 11-15 26.5% 15+ 21.4% 0-5 21.4% 6-10 35.7% 11-15 21.4% 15+ 25% 0-5 30% 6-10 15% 11-15 30% 15+
Age 1. Older Ts are less likely to have had computer courses. 2. Younger Ts are more likely to be satisfied with their salaries and benefits. 3. More experienced and older Ts don't think tech increases workload or younger Ts do. 4. Younger Ts think tech helps their organization. 5. Lower degree and younger teachers are more likely to hope to change careers. 6. Older/more experienced Ts know less about graphics. 7. Older Ts know less about website design.	8.8% 20-30 47.1% 30-40 41.2% 40-50 2.9% 50+ 7.1% 20-30 64.3% 30-40 21.4% 40-50 7.1% 50+ 10% 20-30 35% 30-40 55% 40-50 0% 50+
Status 1. Part-timers are slower to adopt and like to work in teams. 2. Males and full-timers are more likely to think the Korean education system is outdated and ineffective.	41.2% FT 58.8% PT

3. Full-timers think the administration hinders their teaching. 4. Full-timers feel more pressure to perform and think the rehiring process is not fair. 5. Part-timers are more likely to seek out information even if they can't use it immediately. 6. Males and full-timers think it is more important to be able to reuse materials. 7. Full-timers more satisfied with their salaries and benefits. 8. Full-timers are more likely to want to teach all classes in one classroom. 9. Part-timers think more policies would help teachers in the dept. 10. PTs think changing directors is good, directors are well-informed, consistency is not a problem and political decisions don't affect their teaching. 11. FTs are more hindered by the number of students and desks. 12. PTs want to use more tech in their teaching, but don't have the time to do so. 13. PTs (females) are more likely to think that computers do not do unique skills. 14. PTs (females) don't think tech is changing the skills Ss need to succeed. 15. PTs believe they can depend on the classroom resources. 16. PTs (females) believe the admin supports the use of tech. 17. PTs (females) attend more conferences and stay up-to-date. 18. PT (females) Ts know more about the dept site and use it more. 19. PTs use presentation software more than male Ts. 20. PTs (females) perceive time as a bigger barrier to tech use than male Ts.	
Degree 1. Lower degree and younger teachers are more likely to hope to change careers.	76.5% Master 23.5% Doc* 85.7% Master 14.3% Doc 70% Master 30% Doc

Section A	
1. I find it stimulating to be original in my thinking and behavior. 12. Ts who like to be original are quick adopters. 13. Ts who like to be original also like to make their own materials. 14. Ts who like to be original, don't want more policies. 15. Ts who like to be original perceive that they can't depend on the classroom resources. 16. Those who like to be original don't try to stay up-to-date.	94.1% Agree 100% Agree 90% Agree
2. I usually am the first to try something new. 1. Early adopter Ts know more about the Park Univ. site and the Internet. 2. Slow adopters don't make changes in lessons and aren't satisfied with their salary and benefits. 3. Slow adopters do not think their methods are as effective (OR Early adopters do think they are effective).	42.9% Undecided 40% Agree
3. I am reluctant to adopt new ideas until I see other people using them successfully. 1. Ts who need to see examples of successful tech (observability) use CD players more. 2. Ts who are slow adopters think the admin doesn't encourage tech use.	70.6% Disagree 71.4% Disagree 70% Disagree
4. I enjoy solving puzzles or complex issues. 1. Ts who like to solve puzzles think their E1/E2 students are motivated to learn, are more comfortable with tech and provide copies online. 2. Ts who like to solve puzzles think tech is easy and hope to change careers.	73.5% Agree 85.7% Agree 65% Agree
5. I prefer to work on projects in teams. 1. Ts who like to work in teams like to use handouts and think the admin doesn't hinder their teaching. 2. Ts who like to work in teams learn from other Ts. 3. Ts who like to work in teams think the curriculum, textbooks, and policies of the Department are not political or hindering their teaching and are consistent with their beliefs. 4. Ts who like to work in teams are social and slow adopters and think tech helps shy students. 5. Ts who like to work in teams care about professional development, staying up-to-date and think politics doesn't hinder their teaching. 6. Ts who like to work in teams, social Ts and info-seekers know more about the dept site, use it more and know more about the Park Univ. site.	64.2% Disagree 70% Agree

6. Other people see me as daring, rash or venturesome. 1. Daring Ts don't like to work in teams and adopt more quickly. 2. Daring Ts have had more computer courses. 3. Daring Ts think the number of students in their classes hinders their teaching. 4. Daring Ts believe they can't depend on the resources in the classroom. 5. Daring Ts know about graphics, but slow adopters don't. 6. Daring Ts know more about website design.	47.1% Disagree 42.9% Disagree 50% Disagree
7. I like new ideas, but generally take a long time to adopt them. 1. Slow adopters don't make changes in lessons and aren't satisfied with their salary and benefits. 2. Slow adopters do not think their methods are as effective (OR Early adopters do think they are effective).	71.4% Disagree 60% Agree
8. Other people often seek my advice when making decisions. 1. Ts who are influential know less about tech and are doubtful about the use of tech. 2. Influential Ts go to conferences and professional development and think changes in education should be made gradually. 3. Influential Ts know about word processing programs, are social and seek out information. 4. Influential Ts know more about email and website design.	79.4% Agree 71.4% Agree 85% Agree
9. Others describe me as a very social person. 1. Social Ts are more likely to try new things. 2. Social Ts like to work in teams, and get more training. 3. Social Ts use more handouts. 4. Social Ts who have had tech training at work think the classroom resources have always worked. 5. Social Ts don't try to solve tech problems themselves and hope to be administrators one day. 6. Social Ts know about presentation software.	55.9% Agree 50% Agree 60% Agree
10. I often seek out new information even if I cannot immediately use it. 1. Ts who seek out information are less satisfied with their salary and benefits and don't think dept decisions are political and hinder their teaching. 2. Ts who seek out information don't think tech is difficult to learn and try to stay up-to-date. 3. Ts who seek information are less hindered by the lack of tech training at work.	84.4% Agree 64.3% Agree 95% Agree
11. I have received computer training from one or more of my workplaces. 1. Those with less tech training are more likely to adopt until they have examples. 2. Ts who have had work training are more likely to make changes in their lessons. 3. Ts with more tech learning and training at work don't think their E1/E2 Ss are motivated to learn. 4. Ts with tech training from work know more about other operating systems.	50% Agree 50% Agree/ 50% Disagree 50% Agree 40% Disagree
12. I have taken courses on how to use computers or computer programs. 1. Ts with more tech learning and training at work don't think their E1/E2 Ss are motivated to learn. 2. Ts with more tech learning are more comfortable with tech, think it improves lesson quality, promotes constructivist learning and provide copies online (they also chat or play tech games). 3. Ts with more tech training are more likely to have more tech training at work as well. 4. Ts who have taken tech courses like to try new things in their teaching. 5. Ts with more tech learning are more likely to use tech in the future. 6. Ts with tech learning are not satisfied with their knowledge and qualifications. 7. Ts with tech learning know about OHPs, spreadsheet and graphics programs. 8. Ts with more tech learning know more about Windows and graphics and use them more.	53% Agree 57.4% Agree 50% Agree
13. Students learn best in pairs or small groups. 1. Ts who like pair/group work don't use the OHP or the Park Univ. site.	82.4% Agree 71.4% Agree 90% Agree
14. It is important for lessons to match real life experiences as much as possible. 1. Ts who think authentic lessons are important are unaffected by the copy policy but time is not a hindrance to using more tech (or Ts don't want to use more tech!). 2. Ts who think authentic lessons are important don't seek advice from other Ts. 3. Ts who don't think authentic lessons are important think changes should be made gradually.	91.2% Agree 78.6% Agree 100% Agree
15. Teachers are more effective when they choose their own materials and syllabuses.	76.5% Agree 78.6% Agree 75% Agree

16. The Korean education system is out-dated and ineffective at teaching English. 1. Ts who think that Korean education is outdated are more likely to want to develop their own materials, think administrative decisions hinder their teaching, and are more likely to make changes in lesson plans. 2. Ts who don't think that Korean education is outdated believe the curriculum and textbooks are consistent with their beliefs, would like more policies and provide copies online. 3. Ts who think that Korean education is outdated think the number of students hinders their teaching and are unaffected by the copy policy. 4. Ts who don't think that Korean education is outdated attend conferences, stay up-to-date, think vocabulary is important, and want to be administrators.	78.6% Agree 45% Disagree
17. I never follow a written lesson outline in class.	84.4% Disagree 78.5% Disagree 88.9% Disagree
18. I prefer to use many handouts in class. 1. Ts who like handouts don't think administrative decisions are political and hinder their teaching. 2. Ts who like to use handouts don't think their methods are effective and believe English teaching methods will change a lot in the future. 3. Ts who like to use handouts use the Park Univ. site.	53% Agree 42.9% Agree 60% Agree
19. Administrative decisions hinder my teaching. 1. Ts who don't think the admin hinders their teaching think the rehiring process is fair and reasonable. 2. Ts who don't think the admin hinders their teaching think the curriculum is consistent, would like more policies, and think directors are well-informed, but should change every two years. 3. Ts who think the admin hinders their teaching think administrative decisions are political and arbitrary and use the dept site more. 4. Ts who think administrative decisions hinder their teaching believe students are obsessed with grades and the number of students and desks hinders their teaching.	50% Agree 60% Disagree
20. Vocabulary is the most important aspect of my lessons. 1. Ts who think vocabulary is most important learn from other teachers and don't prefer interactive lessons. 2. Ts who think vocabulary is most important provide copies online. 3. Ts who think vocabulary is important seek advice from other Ts.	73.5% Disagree 78.5% Disagree 70% Disagree

21. When the grades of students improve, it is usually because their teachers found more effective teaching approaches or methods. 17. Ts who think new methods help S learning think computers and LCDs are essential and don't hope to change careers.	78.6% Disagree 45% Agree
22. I don't think student-centered teaching works at Park Univ. 18. Ts who don't think S-centered learning works at Park Univ. think tech makes Ss sleepy, but tech is changing Ss needs. 19. Ts who don't think S-centered teaching works at Park Univ. think PPTs are too businesslike.	64.7% Disagree 71.4% Disagree 60% Disagree
23. I often learn teaching techniques from other teachers. 1. Ts who learn from other Ts have had more tech training at work. 2. Ts who learn from other Ts think Park Univ. students are independent.	82.3% Agree 64.3% Agree 95% Agree
24. I usually center my lesson plans on activities rather than lectures. 1. Ts who don't center their lessons on activities know the OHP more and use the OHP and MM players more.	58.8% Agree 71.4% Agree 50% Agree
25. It is impossible for students to achieve significant results during one semester of learning. 1. Ts who think significant improvements are possible in one semester would like regular teacher meetings and believe tech improves the quality of teaching. 2. Ts who think significant improvements are possible in one semester think Ts who don't use computers are disadvantaged. 3. Ts who believe significant results in one semester are possible use website design and programming more and feel maintenance is a barrier to their tech use.	58.8% Agree 50% Agree 65% Agree
26. It is important for me to be able to reuse lesson plans and materials. 1. Ts who like to reuse materials also like to try new things and prefer to teach in one classroom. 2. Ts who like to reuse materials don't ask Ss to use additional websites.	79.4% Agree 92.8% Agree 70% Agree

3. Ts who like to reuse materials are likely to use tech in future classes. 4. Ts who like to reuse materials try first to solve tech problems, but are not careful to stay up-to-date. 5. Ts who like to reuse materials don't see time as a hindrance to tech use (or don't use tech at all).	
27. The best use of class time for students is interactive practice activities. 1. Ts who like interactive practice also center their lessons on activities (beliefs/practices?). 2. Ts who like interactive activities think tech makes Ss sleepy and are not hindered by computer viruses and bad programs.	76.5% Agree 86.7% Agree 70% Agree
28. Once I have taught a lesson plan, I am unlikely to make significant changes in that plan. 1. Ts who don't make changes in lessons like to use tech to teach writing and careful to stay up-to-date.	61.8% Disagree 85.7% Disagree 45% Disagree
29. I like to try new things in my classroom teaching. 1. Ts who like to try new things are more comfortable with computers and think Ts who don't are disadvantaged. 2. Ts who like to try new things think tech increases communication and use email more. 3. Ts who like to try new things know more about MM players. 4. Those who like to try new things feel more need to use tech in their teaching. 5. Ts who like to try new things center their lessons on activities, get help from other Ts and are happy with the classroom resources. 6. Ts who like to try new things don't prefer teaching in reading programs, think the textbooks and curriculum are not consistent with their beliefs and think the number of students hinders their teaching. 7. Ts who like to try new things are not satisfied with their qualifications.	85.3% Agree 78.6% Agree 90% Agree
30. I work harder now than at my former teaching positions. 1. Ts who work harder at Park Univ. don't think tech does unique things, makes Ss have short attention spans, is changing Ss needs and classroom resources have always worked. 2. Ts who don't work harder now want to be teacher-trainers one day.	66.7% Agree 57.1% Agree 73.9% Agree
Section B	
1. I am satisfied with my salary and benefits at Park Univ. 1. Satisfied Ts don't like to use written lesson plans. 2. Ts who are satisfied with their salary/benefits are happy with the resources, want more policies, don't think the administration hinders their teaching or makes bad political decisions and are happy with the TAs. 3. Ts who are not satisfied with the pay/benefits are careful to stay up-to-date. 4. Ts who are happy with the salary/benefits are not hindered by lack of maintenance.	71.4% Agree 45% Disagree
2. I am happy with my schedule and working hours. 1. Ts who are happy with their schedules and hours don't use Park Univ. site, don't think the computers and software are outdated (and there's enough software) and the Internet connection is no problem.	64.7% Agree 64.2% Agree 65% Agree
3. I feel a lot of pressure to perform well as a teacher in the dept. 1. Ts who feel pressure at work think Ss are obsessed with their grades.	63.6% Agree 78.5% Agree 52.6% Agree
4. The rehiring process in the dept is fair and reasonable. 1. Ts who think the rehiring process is fair believe directors are well-informed but should change every two years. 2. Ts who think the rehiring process is fair and reasonable think their E1/E2 Ss are motivated to learn. 3. Ts who think the rehiring process is fair regularly attend conferences and are pro development.	92.9% Disagree 68.4% Undecided
5. I feel secure in my position in the dept.	50% Undecided 42.9% Undecided 55% Undecided
6. I am happy with the resources available at Park Univ. 1. Ts who are happy with the resources do not think the number of computers hinders their teaching. 2. Ts who are happy with the classroom resources think directors are well-informed and not arbitrary.	58.8% Agree 64.3% Agree 45% Agree
7. Teachers in the dept are well-informed of how to use the resources available to them. 1. Ts who are well-informed about the resources use MM players more in their teaching and use the dept site more. 2. Ts who are well-informed about using resources know Cyber campus, the Internet and email.	42.9% Undecided 35.7% Disagree
8. The English curriculum at Park Univ. is consistent with my teaching beliefs. 1. Ts who think curriculum is consistent believe new methods help Ss improve.	64.3% Disagree 52.6% Agree

2. Ts who think the curriculum is consistent with their beliefs believe it is a good idea for directors to change every two years (though their decisions are not arbitrary), feel their main goal is not building confidence, don't prefer to teach in one classroom, like the textbook choice, and believe the dept is more organized now. 3. Ts who think the curriculum is consistent with their beliefs don't think computers are changing students' needs, think tech makes Ss sleepy, and are not likely to change careers.	
9. My main goal in teaching at Park Univ. is to build confidence in the students. 1. Ts whose main goal is to build confidence think admin decisions are arbitrary and the Department is less organized now. 2. Ts who feel confidence building is their main goal do not think tech promotes constructivist learning and are less likely to use presentation software. 3. Ts whose main goal is to build confidence believe that PPTs are too businesslike, superficial and restrict teaching. 4. Ts whose main goal is to build confidence are less likely to feel a need to use tech.	63.6% Agree 91.5% Agree 57.9% Agree
10. I would prefer to teach all my classes in one classroom. 1. Ts who would like to teach in one classroom don't think new methods help Ss improve.	64.3% Agree 55% Disagree

11. I prefer teaching in reading-based ESL programs such as the one used in the dept. 20. Ts who like teaching in reading programs don't center their lessons on activities. 21. Ts who prefer teaching in reading programs feel their E1/E2 Ss are motivated. 22. Ts who prefer to teach in reading programs are not likely to use tech in new classes and feel the resources are dependable. 23. Ts who don't prefer teaching in reading programs don't know about presentation software.	55.8% Disagree 57.1% Disagree 55% Disagree
12. The choice of textbooks in the dept is effective and matches the students' needs. 1. Ts who think the textbooks are consistent with their beliefs prefer to teach in reading programs and think the dept is organized. 2. Ts who feel the textbooks match Ss needs think that tech increases T workload and like to play computer games. 3. Ts who don't like the textbooks perceive more troubles with the Internet connection. 4. Ts who do not like the textbooks feel hindered by the lack of departmental support for tech. Ts who do not like the textbooks feel hindered by the lack of departmental support for tech.	52.9% Disagree 64.3% Disagree 45% Disagree
13. The dept would be more efficient with a teacher-coordinator from the dept in charge. 1. Ts who would like a teacher-coordinator thinks changes in education should be made gradually. 2. Ts who don't want a teacher-coordinator are more likely to use the Park Univ. site and email more.	52.9% Agree 57.1% Agree 50% Agree
14. The dept needs more policies to help teachers to coordinate their teaching better. 1. Ts who don't want a teacher-coordinator are more likely to use the Park Univ. site and email more. 2. Ts who want more policies experience more hindrance from out-dated computers, lack of software and bad maintenance.	50% Disagree 60% Agree
15. The dept should provide regular weekly or monthly workshops which include computer training. 1. Ts who would like workshops think that significant improvements are possible in one semester. 2. Ts who would like workshops do not think Park Univ. students are independent. 3. Ts who would like workshops are more likely to use word processing programs in class. 4. Ts who would like to have workshops are hindered by viruses and bad programs, do not think PPTs are superficial, think classroom computers/LCDs are essential and would like to be teacher-trainers. 5. Ts who would like workshops are more likely to use presentation software and are knowledgeable about OHPs. 6. Ts who would like workshops are more likely to use the Internet more. 7. Ts who would like workshops are hindered by the lack of departmental support and training for tech.	42.8% Disagree 35.7% Agree
16. Decisions by the administration often seem arbitrary or counterproductive. 1. Ts who don't think administrative decisions are arbitrary feel their E1/E2 Ss are motivated. 2. Ts who think administrative decisions are not arbitrary are more likely to use word processing programs in class and are affected by the copy policy. 3. Ts who think the administration can be arbitrary don't use presentation software.	42.9% Agree 35.7% Undecided

17. The directors of the dept are well-informed before making decisions. 1. Ts who think the directors are well-informed don't think administrative decisions are political, don't want a teacher-coordinator, think the dept is organized, like to change directors every two years, and do not think consistency is a problem. 2. Ts who think the directors are well-informed are affected by the copy policy. 3. Ts who think directors are not well informed think PPTs are restrictive and hope to change careers. 4. Ts who believe dept directors are informed about decisions are knowledgeable about and use the dept website as well as use email more.	50% Undecided 70% Undecided
18. I believe many decisions which affect my teaching are made for political reasons. 1. Ts who think the administration makes political decisions don't want more policies. 2. Ts who think the admin makes political decisions do not think the director should change every two years. 3. Ts who feel administrative decision are political also think they are arbitrary. 4. Ts who think administrative decisions are political do not attend conferences or stay up-to-date.	64.3% Undecided 52.6% Disagree
19. The dept seems less organized today than in the past. 1. Ts who think the dept is not organized find computers easy to learn. 2. Ts who think the dept is organized do not think computers do unique things.	64.3% Undecided 60% Disagree
20. It is a good idea for the director of the dept to change every two years. 1. Ts who think director change is good do not think students are obsessed with grades and are affected by the copy policy. 2. Ts who think director change is good do not think computers are changing Ss' needs, but think PPTs are restrictive and too businesslike. 3. Ts who think director change is good are more likely to use presentation software.	55.9% Disagree 78.6% Disagree 40% Disagree
21. Consistency is a serious problem in the dept. 1. Ts who think consistency is a problem would like to have a teacher-coordinator. 2. Ts who see a problem in dept consistency believe it is a bad idea to change directors every two years. 3. Ts who don't see a problem with consistency believe TAs and their English are good as well. 4. Ts who think dept consistency is a problem also think computer use restricts their movement and PPTs are restrictive. 5. Ts who do not think consistency is a problem in the dept are more likely to use presentation software and the dept website.	50% Undecided 45% Disagree
22. The dept Teaching assistants are competent and well-trained. 1. Ts who think the TAs and their English are good have no real hindrances with technology use or support for tech.	58.8% Agree 64.3% Agree 55% Agree
23. The dept Teaching assistants' English ability is sufficient and never hinders communication. 1. Ts who think the TAs and their English are good have no real hindrances with technology use or support for tech.	57.1% Agree 44.4% Agree/ 44.4% Undecided
24. Park Univ. students are independent, and can work on their own.	61.8% Agree 57.1% Agree 65% Agree
25. Students at Park Univ. are too obsessed with getting high grades. 1. Ts who do not think Ss are obsessed with grades think tech adds workload and also like teacher meetings. 2. Ts who think Ss are obsessed with grades think PPTs are restrictive.	82.3% Agree 85.8% Agree 80% Agree
26. My English one and English two students are highly motivated to study in my class. 1. Ts who think their E1/E2 students are motivated believe tech promotes constructivist learning, and new methods help students learn, but don't think computers are easy to learn. 2. Ts who think their E1/E2 Ss are motivated think tech is easy to learn. 3. Ts who think their E1/E2 Ss are motivated want to learn tech, but it is too difficult.	55.9% Agree 50% Agree 60% Agree
27. The number of students in my classes hinders my teaching. 1. Ts who think the number of Ss hinders teaching would like to teach in one classroom and the directors are not well-informed. 2. Ts who are not hindered by the number of Ss feel the textbooks match the Ss needs. 3. Ts who think the number of students hinders their teaching think the Department is not as organized, Ss are obsessed with grades and E1/E2 Ss are not motivated. 4. Ts who are not hindered by the number of Ss do not think computers do unique things. 5. Ts who are hindered by the number of Ss are more likely to hope to change careers.	73.5% Agree 85.7% Agree 65% Agree

28. The number of desks in the classrooms hinders my teaching. 1. Ts who think the number of desks hinders their teaching think teaching at Park Univ. is easier. 2. Ts who think the number of desks hinders teaching would like to teach in one classroom. 3. Ts who are not hindered by the number of desks prefer to teach in reading programs and feel the textbooks match the Ss needs. 4. Ts who think the number of desks hinder their teaching also believe the number of Ss hinders their teaching and director change is bad. 5. Ts who are not hindered by the number of desks believe that computers add to their workload, do not do special skills, and the computers in class have always worked for them. 6. Ts who are hindered by the number of desks try to solve their own computer problems.	73.5% Agree 78.6% Agree 70% Agree
29. My English three or four classes are more suitable for the use of computers for teaching than my English one or two classes.	57.1% Agree 95% Undecided
30. I provide students with copies of all my classroom handouts on a website (such as the Park Univ. site or other). 1. Ts who provide copies online also have students use another website for class. 2. Ts who put copies online are comfortable with computers, find them easy to learn, and are knowledgeable at using word processing programs and the dept website. 3. Ts who put copies online do not like chalk, do not think computers make Ss sleepy, think computers/LCDs are essential, and hope to change careers one day. 4. Ts who provide copies online use the Cyber campus a lot	50% Disagree 42.9% Agree
31. Other than the mandatory listening component in some classes, I usually require my students to visit a website as part of the requirements in my class. 1. Ts who have Ss use another website do not think computers make Ss sleepy.	50% Agree 50% Disagree
32. I have used word processing computer programs as part of my lectures. 1. Ts who use word processing programs in class don't like chalk and think computers/LCDs are essential. 2. Ts who use word processing programs in class have students use another website for class, think computers improve the quality of teaching and are easy to learn and use tech a lot in their personal lives. 3. Ts who use word processing programs in class feel computers do special skills, will use more tech in the future, believe Ss like to use computers, don't think computers shorten attention spans, are more likely to use tech in designing new classes, know about MM player use, use presentation software in class, and like to develop their own computer materials. 4. Ts who use word processing programs in class know about the Internet and think the Park Univ. site is useful. 5. Ts who do not use word processing programs in class do not feel a need to use computers.	*79.4% Agree 80.6% Agree 80% Agree * Percentage affected by missing values
33. The Park Univ. site is useful and effective. 1. Ts who feel the Park Univ. site is useful are happy with classroom resources and well-informed about how to use resources. 2. Ts who think the Park Univ. site is useful are more likely to put copies online, want to use more tech but are hindered by time, feel computers improve the quality of learning, promote constructivism, use tech a lot personally, feel computers help organization and aid communication, will use computers more in future, think Ss like using computers for English study, think Ss expect Ts to use computers in lessons, seek tech advice from other Ts, will use tech more in designing new classes, and think computers are changing future teaching methods. 3. Ts who think the Park Univ. site is useful think computers/LCDs are essential. 4. Ts who think the Park Univ. site is useful know a lot about it, know about the Internet, know and use email a lot, know and use programming, and do not have problems with outdated computers or maintenance. 5. Ts who do not think the Park Univ. site is useful do not feel the need to use computers.	85.3% Agree 78.5% Agree 90% Agree

34. Due to the recent monitoring of the copy machine, I cannot make as many copies as I would like.	76.5% Disagree 85.7% Disagree 70% Disagree
35. I would like to use computers more in my teaching, but do not have enough time to redesign my lessons. 24. Ts who would like to use more computers, but don't have time are hindered by the lack of support to use computers.	57.1% Disagree 65% Agree

25. Ts who would like to use tech more but don't have time are hindered by viruses and other programs on classroom computers, believe teaching methods will change a lot in the future, and like to attend conferences and stay up-to-date.	
36. I would like to have regular weekly or monthly teacher meetings. 26. Ts who would like T meetings don't want to teach in one classroom, would like a T-coordinator, and like workshops. 27. Ts who would like teacher meetings put copies online, have students use another website, use word processing programs in class, think the Park Univ. site is useful, think computers are easy to learn, improve the quality of learning, promote constructivism, don't like chalk, are not hindered by Korean programs, do not think computers make Ss sleepy, don't think PPTs restrict teaching, think computers/LCDs are essential and like to attend conferences. 28. Ts who would like to have T meetings do not feel the need to use computers.	61.8% Disagree 71.4% Disagree 55% Disagree
Section C	
1. I feel comfortable using computers. 1. Ts who are comfortable with computers, feel they help quality, are easy to learn, use them personally, will use them in the future, feel they are not difficult to learn, think computers/LCDs are essential, know about MM players, word processing and presentation software, know the Internet, email, website design, and Windows, and are not hindered by computer training.	79.4% Agree 70.5% Agree 85% Agree
2. I think that using computers improves the quality of teaching. 1. Ts who think computers improve the quality of teaching think computers are easy, promote constructivism, use them personally, will use them more in the future, think they aid communication, think Ss like them and expect Ts to use them, think non-users are disadvantaged, will use them more for new classes, don't make Ss sleepy, think computers/LCDs are essential, think PPTs are not too businesslike, use presentation software, and spreadsheets, use the Internet and website design a lot, and are not hindered by lack of tech training.	58.8% Agree 57.1% Agree 60% Agree
3. I am anxious about using computers in the classroom. 1. Ts who are anxious about using computers know less than their Ss. 2. Ts who are anxious about computers think that they restrict their movement in class.	61.8% Disagree 57.1% Disagree 65% Disagree
4. I think learning to use computers is easy for me. 1. Ts who think computers are easy to learn think they help organization, will use them in the future, computers are changing Ss skills, don't like chalkboards, don't think they are difficult, PPTs superficial, computers/LCDs essential, know MM players, word processing, spreadsheets, website design and graphics, and use spreadsheets and website design a lot.	67.6% Agree 64.3% Agree 70% Agree
5. Using computers promotes constructivist learning styles. 1. Ts who think computers promote constructivist learning will use them in the future, think Ss like computers, Ss expect tech use, don't make Ss sleepy, PPT not restrictive, comp/LCD essential, admin encourages, know and use presentation software, use spreadsheets and the Internet, but are not hindered by lack of training.	64.3% Undecided 65% Agree
6. Computer use increases my usual workload. 1. Ts who think computers increase workload know the Park Univ. site well, are not hindered by outdated computers and maintenance, and don't lack dept. support.	35.7% Disagree/ 35.7% Undecided 65% Agree
7. I like to use technology in my life (computers, cellular phones, etc.). 1. Ts who use tech a lot in their personal lives think computers organize, will use in the future, Ss expect Ts to use, like to make their own tech materials, no movement restriction, know and use presentation software, and use graphics. 2. Ts who are more likely to use tech personally think director change is good and dept consistency is not a problem. 3. Ts who use tech in their personal lives do not feel building confidence is their main goal.	82.3% Agree 78.6% Agree 85% Agree
8. I like to use the computer to play games or chat with friends or colleagues. 1. Ts who use tech for games/chat do not think tech does special skills, computers always worked, don't restrict movement, know and use graphics.	64.3% Disagree 55% Agree
9. Anything that computers can be used for, I can do just as well some other way. 1. Ts who don't think tech does special things go to conferences and stay up-to-date, can depend on classroom tech, tech always worked, admin encourages, and don't lack training. 2. Ts who feel tech is unique do not feel decisions are political. 3. Ts who feel tech does unique things would like to teach in one classroom.	71.4% Disagree 45% Agree

10. Using computers helps me organize and access lesson plans and materials. 1. Ts who think tech organizes will use in future, aids communication, seek tech help, don't like chalkboards, com/LCD essential, and use the Park Univ. site.	85.3% Agree 78.6% Agree 90% Agree
11. I am likely to use computers in my lessons in the future. 1. Ts who will use tech in future use email, tech aids communication, Ss like Cs, Ss expect T use, non-users disadvantaged, will use tech in new classes, tech doesn't hurt movement, don't like chalkboards, PPT not businesslike, com/LCD essential, hope to change careers, use present, spreads and graphics, and feel a need to use tech. 2. Ts who think all Ts will use tech in future think teach methods changing, Ts must use online, non-users disadvantaged, seek tech advice, use word processing programs, know and use spreads, use graphics, know and use email.	88.2% Agree 85.7% Agree 90% Agree
12. I regularly use email to communicate with my students. 1. Ts who use email believe it aids comm., all Ts will use, doesn't hurt movement, use graphics, Internet and email, and feel a need to use tech.	79.4% Agree 85.7% Agree 75% Agree
13. Computers significantly aid communication between students and teachers. 1. Ts who think tech aids comm. think Ss like, helps shy, don't like chalk, Korean no problem, know site, know and use Park Univ. site, use Internet and email.	79.4% Agree 78.6% Agree 80% Agree
14. Students enjoy using computers to learn English. 1. Ts who think Ss like tech think it helps shy, all Ts will use, non-users disadvantaged, use in new class, don't hurt movement, Korean no problem, com/LCD essential, teaching will change, use spreads.	53% Agree 50% Agree/ 50% Undecided 55% Agree
15. Computer use has a negative impact on student interaction. 1. Ts who think tech hurts S interaction think PPT restricts.	67.6% Disagree 71.4% Disagree 65% Disagree
16. My students know more about using computers than I do. 1. Ts who know less than Ss know about Department site, don't use website design.	64.7% Agree 57.1% Agree 70% Agree
17. I think that computers can help give shy students an equal chance to participate. 1. Ts who think tech helps shy Ss like conferences and up-to-date, admin one day, don't use present or graphics, know and use cyber and email.	71.4% Undecided 75% Agree
18. Using computers generally shortens students' attention spans. 1. Ts who think tech shorten attention spans use other tech material, PPT businesslike, use present.	64.3% Undecided 42.1% Undecided 42.1% Agree
19. My students expect me to use computers for instruction. 1. Ts who think Ss expect Ts to use tech think non-users disadvantaged, use with new class, don't hurt movement, Ss not sleepy, know MM players, use present and website design, feel a need to use tech.	50% Disagree 50% Undecided
20. Computers are changing the skills that students need to know in order to succeed in life. 1. Ts who think tech is changing Ss' skills do not stay up-to-date, don't use dept site, know and use website design, Windows and other operating systems. 2. Ts who feel tech is changing Ss' needs think administrative decisions are political. 3. Ts who think tech is changing students' needs believe Korean education is outdated, don't prefer handouts, and administrative decisions hinder their teaching.	79.4% Agree 100% Agree 65% Agree

21. All teachers will one day have to use computers for instructional purposes.	67.6% Agree 57.1% Agree 75% Agree
22. Teachers who do not use computers as part of their lessons are at a disadvantage. 29. Ts who think non-users are disadvantaged use tech in new class, PPTs not superficial, want to be admin, skills will change, don't feel need.	41.2% Disagree 40% Agree
23. I sometimes seek advice from other teachers about how to use computers for educational purposes. 1. Ts who seek tech advice are satisfied with qualifications, methods change in future.	61.8% Agree 64.3% Agree 60% Agree
24. I am more likely to incorporate computers in my teaching when designing a new class. 1. Ts who will use tech more in a new class can depend, tech not sleepy, stay up-to-date, hope T trainer, S skills change, use present, graphics and email, but don't feel need to use tech.	61.7% Agree 35.7% Agree 35.7% Undecided 80% Agree

25. I am more likely to use pre-made computer materials and lessons in my teaching rather than develop my own materials. 1. Ts who like to make their own materials don't require Ss to use another website and know more about tech than their Ss.	55.9% Disagree 64.3% Disagree 50% Disagree
26. I can depend on the computers and other resources in the classroom. 1. Ts who don't think they can depend on classroom resources like to make their own materials, believe Korean education is outdated and administrative decisions hinder their teaching. 2. Ts who can depend on the classroom computers require students to use another website. 3. Ts who can depend on classroom tech stay up-to-date, know present.	57.1% Disagree 75% Agree
27. The computers and other resources in the classrooms at Park Univ. have always worked when I needed to use them. 1. Ts who have had class tech always work don't feel lack of support or training (Ts who have had tech problems like to solve their own tech problems). 2. Ts who feel the tech hasn't always worked would like to teach in one classroom.	64.3% Disagree 40% Agree
28. Using computers restricts my movement in the classroom.	44.1% Disagree 42.9% Disagree 45% Disagree
29. I like using the chalkboards in the classroom. 1. Ts who like using chalkboards don't think new methods help S learning. 2. Ts who like to use chalkboards don't believe S-centered learning works at Park University, and significant results are not possible in one semester. 3. Ts who don't like chalkboards think com/LCDs essential, know other programs, programming.	64.3% Disagree 45% Agree
30. I don't' use some computer programs and software at Park Univ. because they are written in Korean. 1. Ts who don't have Korean tech problems think admin encourages, attend conferences, don't change careers, use MM players. 2. Ts who have trouble with Korean programs think Ss are obsessed with their grades. 3. Ts who have problems with Korean programs don't want more policies, think directors are not well-informed and that the administration makes political decisions.	50% Agree 66.7% Disagree/ 33.3% Undecided
31. I would like to use more computer programs and software, but they seem too difficult to learn.	64.7% Disagree 71.4% Disagree 60% Disagree
32. Using computers and LCD projectors in the classroom makes students sleepy. 1. Ts who think tech makes Ss sleepy don't want more policies. 2. Ts who think tech makes Ss sleepy think PTT restricts, don't use present or OHP.	61.8% Disagree 50% Disagree 70% Disagree
33. Viruses and other unnecessary software hinder my use of the classroom computers. 1. Ts who think viruses/programs hinder com use don't hope to change careers, methods change in future, no changes in 20 yrs, lack of com, outdated com and soft, instruct soft, Internet access and tech support hinders their use.	42.9% Disagree 40% Agree
34. When I have a computer problem, I seek help only after first trying to solve it myself. 1. Ts who first try to solve tech problems think PPTs superficial, know MM players. 2. Ts that solve problems themselves would like to teach in one classroom.	94.1% Agree 82.9% Agree 95% Agree
35. I like to use computers to give writing tutorials in class. 1. Ts who use tech for writing tutorials use email.	57.1% Disagree 50% Agree
36. PowerPoint is often used superficially by students and teachers. 1. Ts who think PPTs are superficial know word processing, Internet, and website design, don't lack dept support, lack time to use, but don't feel a need.	60.6% Agree 57.2% Agree 63.1% Agree
37. PowerPoint restricts how teachers can teach their lessons. 1. Ts who think PPTs restrict teaching think PPTs businesslike, don't lack training, don't feel a need.	61.8% Disagree 50% Disagree 70% Disagree
38. PowerPoint lessons are too businesslike.	50% Undecided 65% Disagree

39. Computers and LCD projectors are an essential part of the classroom resources. 1. Ts who think computers/LCDs are essential know OHP, ICU, programming.	79.4% Agree 78.6% Agree 80% Agree
40. The administration encourages teachers to use computers in their teaching. 1. Ts who think the administration encourages teaching are up-to-date, use dept site. 2. Ts who feel the administration encourages tech use would not like to teach in one classroom. 3. Ts who think the admin encourages tech use think they are well-informed about resource use. 4. Ts who don't think the administration encourages tech use believe they work harder at Park Univ.	42.9% Disagree 42.9% Undecided 40% Agree

Section D	
1. I am satisfied with my teaching knowledge and qualifications. 30. Ts who are satisfied with their qualifications do not want to change careers, are hindered by the number of computers, outdated com, soft, and maintenance.	67.7% Agree 71.4% Agree 65% Agree
2. I regularly attend conferences and other teacher development opportunities. 1. Ts who attend conferences stay up-to-date.	57.1% Disagree 75% Agree (No "SA")
3. I am careful to stay up-to-date on new English teaching methods. 1. Ts who are careful to stay up to date are not hindered by the number of Ss. 2. Ts who stay up-to-date do not want to change careers, use CD and present, know and use dept site, know Park Univ. site and Internet, use email.	50% Disagree 95% Agree (No "SA")
4. Professional development is very important for English teachers in Korea. 1. Ts who think pro development is important do not think Ts will teach online, know Internet.	76.4% Agree 71.4% Agree 80% Agree
5. I hope to be an administrator (e.g., director, manager) one day. 1. Ts who want to be administrators one day want to be trainer, know OHP, present, spreads and dept site, are hindered by lack of computers.	58.8% Disagree 71.4% Disagree 50% Disagree
6. I hope to change careers one day. 1. Ts who hope to change careers feel the curriculum is not consistent with their beliefs.	42.9% Undecided 60% Disagree
7. I would like to be a teacher-trainer one day. 1. Ts who want to be trainers know OHP, are hindered by lack of maintenance.	50% Disagree 55% Undecided
8. I feel the methods that I use in my teaching are effective. 1. Ts who feel their methods are effective would like to teach in one classroom.	85.3% Agree 92.9% Agree 80% Agree
9. English teaching methods will change a lot in the future. 1. Ts who think teaching methods will change think TS teach online. 2. Ts who think methods won't change use word processing programs and spreads, are not hindered by soft, support or training.	67.6% Agree 64.2% Agree 70% Agree
10. Changes in education need to be made gradually. 1. Ts that think changes must be gradual know MM players.	79.4% Agree 71.4% Agree 85% Agree
11. Teachers will one day be required to teach classes online.	58.8% Agree 64.3% Agree 55% Agree
12. The skills that English teachers need in order to be successful will not significantly change in the next 20 years.	52.9% Disagree 42.9% Disagree 60% Disagree

Section E	
1. Overhead Projector (OHP) use 1. Ts who use OHP know OHP.	67.6% R/N 57% R/N 75% R/N

1b. Overhead Projector (OHP) knowledge 1. Ts who know OHP know and use present, use spreads and graphics.	69.7% I/A 71.5% I/A 78.9% I/A/E
2. CD Player use 1. Ts who use CDs know CDs, know MM players.	92.9% R/N 65% S/O
2b. CD Player knowledge (100% I/A/E!) 1. Ts who know CDs know MM players and word processing.	81.8% A/E 92.9% A/E 73.7% A/E
3. CD-ROM and DVD player for in-class use of multimedia use 1. Ts who use MM players, know Internet and email and don't feel a need for tech.	71.4% R/N 45% S
3b. CD-ROM and DVD player for in-class use of multimedia knowledge 1. Ts who know MM players know present, word processing and Internet. Ts that don't know MM players use CDs.	91% I/A/E 85.7% I/A/E 94.7% I/A/E
4. Presentation software use (e.g., PowerPoint) 1. Ts who use present know present, use graphics, feel a need for tech. 2. Ts who use presentation software in class are affected by the copy policy, and like teacher meetings.	71.4% R/N 50% O/VO
4b. Presentation software knowledge (e.g., PowerPoint) 1. Ts who know present know Internet and word processing programs.	50% N/B 73.7% I/A/E
5. Word processing (e.g., creating, storing, retrieving, printing electronic text.) use 1. Ts who use word processing use Park Univ. site.	91.1% O/VO 85.7% O/VO 95% O/VO
5b. Word processing (e.g., creating, storing, retrieving, printing electronic text.) knowledge 1. Ts who know word processing programs and spreads, Park Univ. site, Internet, and email, use and know website design, and have no problems with training.	66.7% A/E 71.4% A/E 100% I/A/E
6. Spreadsheets (e.g., Excel, manipulating/organizing numbers) use 1. Ts who use spreads, know spreads, use graphics, use and know Park Univ. site.	55.9% R/N 71.4% R/N 45% R/N
6b. Spreadsheets (e.g., Excel, manipulating/organizing numbers) knowledge 1. Ts who know spreads know graphics and Internet.	50% N/B 50% N/B 50% N/B 50% I/A
7. Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols) use 1. Ts who use graphics know graphics.	70.6% R/N 64.3% R/N 75% R/N
7b. Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols) knowledge 1. Ts who know graphics, use the dept site.	57.1% I/A 78.9% N/B
8. Dept website materials (downloading, uploading, messaging) use 1. Ts who use the dept site know the dept site and Park Univ. site.	50% N/R 85% O/VO
8b. Dept website materials (downloading, uploading, messaging) knowledge 1. Ts who know the dept site use and know Park Univ. site, know Internet, use email.	87.9% I/A/E 71.4% I/A/E 100% I/A/E

9. Park Univ. site (English or Korean side) use 31. Ts who use Park Univ. site know Park Univ. site, use Internet, hindered by lack of soft.	82.3% O/VO 64.3% O/VO 95% O/VO
9b. Park Univ. site (English or Korean side) knowledge 1. Ts who know Park Univ. site know Internet, use email.	57.5% A/E 42.8% A/E 67.4% A/E 100% I/A/E
10. Internet content (e.g., browsing, surfing, searching) use 1. Ts who use Internet know Internet.	91.1% O/VO 92.9% O/VO

	90% O/VO
10b. Internet content (e.g., browsing, surfing, searching) knowledge (100% I/A/E!) 1. Ts who know Internet don't use dept site.	75.7% A/E 64.3% A/E 84.2% A/E
11. Email (e.g., sending and receiving electronic messages) use	94.1% O/VO 85.7% O/VO 100% O/VO
11b. Email (e.g., sending and receiving electronic messages) knowledge (100% I/A/E!)	78.2% A/E 71.4% A/E 83.4% A/E
12. Website design (e.g., FrontPage, Dream Weaver, Korean software) use	82.4% N/R 92.8% N/R 75% N/R
12b. Website design (e.g., FrontPage, Dream Weaver, Korean software) knowledge	72.7% N/B 71.4% N/B 73.7% N/B
13. Windows operating system use	85.7% S/O/VO 63.2% N/R
13b. Windows operating system knowledge	78.6% I/A/E 55.6% N/B
14. Other operating system use	90.9% N/R 92.9% N/R 89.5% N/R
14b. Other operating system knowledge	93.8% N/B 92.9% N/B 94.4% N/B
15. Programming languages use (81.8% N!)	90.0% N/R 92.9% N/R 89.5% N/R
15b. Programming languages knowledge	90.6% N/B 85.7% N/B 94.4% N/B
Section F	
1. Not enough computers 2. Ts who are hindered by lack of computers are hindered by outdated com, maintenance, Internet.	38.3% S/O 42.9% S/O 35% S/O
2. Outdated computers and other hardware 1. Ts who are hindered by outdated com are hindered by outdated soft, maintenance, soft, Internet. (81.8% N!)	50% N/R 45% S/O/VO
3. Outdated/incompatible software 1. Ts who are hindered by outdated software problems are hindered by maintenance, lack of soft, Internet, support, and time.	47% S/O/VO 50% S/O 45% S/O/VO
4. Lack of maintenance/technical support of computers 1. Ts who are hindered by maintenance are hindered by soft and Internet.	50.1% S/O/VO 50% S/O 50% S/O/VO
5. Lack of instructional software 1. Ts who are hindered by lack of software are hindered by Internet, support, and time.	47.1% S/O/VO 42.9% S 50% S/O/VO
6. Internet not accessible/inconsistent 1. Ts who are hindered by Internet are hindered by support and time.	44.1% S/O/VO 50% S/O 40% S/O/VO
7. Lack of department support on how to use computers 1. Ts who are hindered by support are hindered by training.	41.1% S/O 42.8% S/O 35% S/O
8. Lack of training in the use of computers 1. Ts who are hindered by training are hindered by time.	58.8% S/O/VO 57.1% S/O/VO 60% S/O

9. Lack of time (NO VO!)	70.6% S/O 50% S/O 85% S/O
10. Lack of need	61.8% S/O/VO 68.5% S/O/VO 50% S/O/VO

Appendix K: Survey Questionnaire Items with Significant Oppositions

Item	Full-Time Instructors*	Part-Time Instructors*	Significant difference?	Possible explanation	Related categories
A2: I usually am the first to try something new.	42.9% Undecided	40% Agree	No	Both percentages represent minorities	*Personality; attitude toward tech and change*
A5: I prefer to work on projects in teams.	64.2% Disagree	70% Agree	Yes	Part-timers are more group-oriented, and share an office and materials readily	*Teacher community important; influence of others; Korean education issues*
A7: I like new ideas, but generally take a long time to adopt them.	71.4% Disagree	60% Agree	Yes	Part-timers being group-oriented tend to adopt new ideas as a group, resulting in a slower adoption rate	*Personality; attitude toward tech and change; influence of others*
A16: The Korean education system is out-dated and ineffective at teaching English.	78.6% Agree	45% Disagree	Yes	Part-timers are more aligned with the culture and education system	*Koreans education issues; leadership and administration issues*
A19: Administrative decisions hinder my teaching.	50% Agree	60% Disagree	Yes	Full-timers have more experience with administration; part-timers beliefs are more culturally aligned	*Leadership and administration issues; teaching restrictions*
A21: When the grades of students improve, it is usually because their teachers found more effective teaching approaches or methods.	78.6% Disagree	45% Agree	Yes	Full-timers have more teaching experience and may be drawing on more negative experiences or feel less control over students' achievement	*Effectiveness/efficiency; teaching beliefs*
B1: I am satisfied with my salary and benefits at Park Univ.	71.4% Agree	45% Disagree	Yes	Full-timers have better working conditions	*Job satisfaction*
B4: The rehiring process in the dept is fair and reasonable.	92.9% Disagree	68.4% Undecided	Yes	Full-timers clearly do not like the rehiring process; part-timers are mostly unsure, uninformed and/or hesitant	*Job satisfaction; leadership and administration issues*
B7: Teachers in the dept are well-informed of how to use the resources available to them.	42.9% Undecided	35.7% Disagree	No	Both percentages represent minorities	*Tech training and experience; leadership and administration issues*
B8: The English curriculum at Park Univ. is consistent with my teaching beliefs.	64.3% Disagree	52.6% Agree	Yes	Clear evidence that the part-timers are more aligned with the administration	*Teaching beliefs; Korean education issues; job satisfaction; teaching experience; effectiveness/efficiency*
B10: I would prefer to teach all my classes in one classroom.	64.3% Agree	55% Disagree	Yes	Full-timers may like the consistency; part-timers may like the variety or are concerned about getting less than FTs	*Physical classroom considerations*
B14: The dept needs more policies to help teachers to coordinate their teaching better.	50% Disagree	60% Agree	Yes	Part-timers seem to prefer more clarity/direction from the administration in	*Leadership and administration issues;*

				all matters	*effectiveness/efficiency*
B15: The dept should provide regular weekly or monthly workshops which include computer training.	42.8% Disagree	35.7% Agree	No	Both percentages represent minorities. However, full-timers seem to be workshop adverse in general	*Tech training and experience; leadership and administration issues*
B16: Decisions by the administration often seem arbitrary or counterproductive.	42.9% Agree	35.7% Undecided	No	Both percentages represent minorities. However, part-timers seem to be more aligned with administration	*Leadership and administration issues; effectiveness/efficiency*
B18: I believe many decisions which affect my teaching are made for political reasons.	64.3% Undecided	52.6% Disagree	Yes	Part-timers are aligned with the culture whereas full-timers may be more skeptical of the decision making process	*Leadership and administration issues; effectiveness/efficiency*
B19: The dept seems less organized today than in the past.	64.3% Undecided	60% Disagree	Unsure	Full-timers have more experience, but PTs may be responding from alignment with the culture	*Turnover; leadership and administration issues*
B21: Consistency is a serious problem in the dept.	50% Undecided	45% Disagree	No	Same as above, but percentages less significant	*Turnover; effectiveness efficiency; leadership and administration issues*
B29: My English three or four classes are more suitable for the use of computers for teaching than my English one or two classes.	57.1% Agree	95% Undecided	No	All but one of the part-timers have never taught these classes	*Tech resistance and issues*
B30: I provide students with copies of all my classroom handouts on a website (such as the Park Univ. site or other).	50% Agree	42.9% Undecided	Yes	Despite the use of the word processing "all", half the full-timers use websites for supplements but part-timers are mixed	*Class organization techniques; tech use in teaching; X website use*
B31: Other than the mandatory listening component in some classes, I usually require my students to visit a website as part of the requirements in my class.	50% Agree	50% Disagree	Yes	Same as above, except it may be significant that more part-timers do not use websites which are not required	*Tech use in teaching; tech requirements for students*
B35: I would like to use computers more in my teaching, but do not have enough time to redesign my lessons.	57.1% Disagree	65% Agree	Yes	Time is more of an issue for part-timers and/or they have more desire to use computers in their teaching	*Time; attitude toward tech and change*
C5: Using computers promotes constructivist learning styles.	64.3% Undecided	65% Agree	Unsure	Full-timers may simply be considering this issue more deeply, or part-timers may have better attitudes/experience	*Attitude toward tech and change*
C6: Computer use increases my usual workload.	35.7% Disagree/ 35.7% Undecided	65% Agree	Yes	More part-timers seem to have computer experience and agree that it adds work to their schedules	*Attitude toward tech and change; tech resistance and issues*
C8: I like to use the computer to play games or chat with friends or colleagues.	64.3% Disagree	55% Agree	Yes	Part-timers generally seem to use computers more in their lives	*Attitude toward tech and change; tech personal use*
C9: Anything that computers can be used for, I can do just as well some other way.	71.4% Disagree	45% Agree	Yes	Full-timers have stronger beliefs about the value of computers, but perhaps not in education or teaching	*Attitude toward tech and change*
C17: I think that computers can help give shy students an equal chance to participate.	71.4% Undecided	75% Agree	Yes	Does this equate to part-timers having more faith in tech? Does this communicate a	*Attitude toward tech and change; tech resistance and*

				deeper understanding?	*issues; tech works*
C18: Using computers generally shortens students' attention spans.	64.3% Undecided	42.1% Agree 42.1% Undecided	Unsure	Both groups are still pondering this difficult issue. However, a significant portion of part-timers agree	*Attitude toward tech and change; tech resistance and issues*
C19: My students expect me to use computers for instruction.	50% Disagree	50% Undecided	Unsure	Opinions are split, but full-timers almost have a majority	*Tech resistance and issues; Korean education issues*
C22: Teachers who do not use computers as part of their lessons are at a disadvantage.	41.2% Disagree	40% Agree	Unsure	Combined with the above, the trend may be that many part-timers feel pressure to use computers in teaching	*Attitude toward tech and change; Korean education issues*
C26: I can depend on the computers and other resources in the classroom.	57.1% Disagree	75% Agree	Yes	Full-timers seem to have had more bad experiences, although this may be a cultural phenomenon again	*Tech resistance and issues; attitude toward tech and change*
C27: The computers and other resources in the classrooms at Park Univ. have always worked when I needed to use them.	64.3% Disagree	40% Agree	Yes	This seems to point to the cultural aspect in part-timers and a bit of optimism in some of the full-timers	*Tech resistance and issues; resource trouble*
C29: I like using the chalkboards in the classroom.	64.3% Disagree	45% Agree	Yes	Most full-timers have negative associations with chalkboards; part-timers are mixed but more positive.	*Chalkboard use; personality; teaching beliefs*
C30: I don't' use some computer programs and software at Park Univ. because they are written in Korean.	50% Agree	66.7% Disagree/ 33.3% Undecided	No	This is expected – part-timers all are native-Korean speakers and some full-timers can use Korean	*Korean education issues; tech resistance and issues*
C33: Viruses and other unnecessary software hinder my use of the classroom computers.	42.9% Disagree	40% Agree	No	Both percentages represent minorities	*Maintenance; resource trouble; tech resistance and issues*
C35: I like to use computers to give writing tutorials in class.	57.1% Disagree	50% Agree	Unsure	This may show part-timers to be more resource-oriented	*Writing vs. computer; attitude toward technology*
C38: PowerPoint lessons are too businesslike.	50% Undecided	65% Disagree	Unsure	Part-timers use PPTs more and may be more optimistic	*PowerPoint issues*
C40: The administration encourages teachers to use computers in their teaching.	42.9% Disagree 42.9% Undecided	40% Agree	Unsure	Both groups are not sure, but part-timers again may be more aligned with the administration/culture	*Leadership and administration issues; tech use in teaching*
D2: I regularly attend conferences and other teacher development opportunities.	57.1% Disagree	75% Agree (No "SA")	Yes	Part-timers take part in more professional development	*Seeking training and knowledge; personality*
D3: I am careful to stay up-to-date on new English teaching methods.	50% Disagree	95% Agree (No "SA")	Yes	Part-timers are more concerned with updating their methods, but why – image, personal growth, or both?	*Seeking training and knowledge; personality*
D6: I hope to change careers one day.	42.9% Undecided	60% Disagree	Yes	Part-timers are more committed to their careers, whereas full-timers feel less secure in their positions	*Personal goals*
D7: I would like to be a teacher-trainer one day.	50% Disagree	55% Undecided	No	The two groups are equally mixed.	*Personal goals*

E2: CD Player use	92.9% Never/rarely	65% Sometimes/Often	Yes	Part-timers may use CD players more for more authentic accents and/or situations or be more resource-oriented	*Tech use in teaching*
E3: CD-ROM and DVD player for in-class use of multimedia use	71.4% Never/rarely	45% Sometimes	Yes	Same as above, but part-timers use less modern resources, but why – availability and/or ability?	*Tech use in teaching*
E4: Presentation software use	71.4% Never/rarely	50% Often/ Very Often	Yes	Part-timers use more resources, but what influence does culture/group sharing have in this regard?	*Tech use in teaching*
E4b: Presentation software knowledge	50% None/Beginner	73.7% Intermediate/ Advanced/Expert	Yes	Is this the cause or effect of the above? How strongly does knowledge translate into practice?	*Tech training and experience; attitude toward tech*
E7b: Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols) knowledge	57.1% Intermediate/ Advanced	78.9% None/ Beginner	Yes	Part-timers do not seem to have know-how in graphics despite knowledge in other tech areas. Many full-timers seem to know, but not employ their graphics skill	*Tech training and experience; attitude toward tech*
E8: Dept website materials (downloading, uploading, messaging) use.	50% Never/rarely	85% Often/Very often	Unsure	Full-timers said "There's nothing there"; part-timers may be using it in a different way	*Dept site use; tech use in teaching; influence of others*
F2: Outdated computers and other hardware	50% Never/rarely	45% Sometimes/ often/very often	Yes	Part-timers seem to use more tech in their teaching and more use is associated with more realized problems	*Tech resistance and issues; resource trouble; maintenance; tech use in teaching*

**Unless otherwise indicated, "Disagree" includes "Strongly Disagree" and "Agree" includes "Strongly Agree".

Appendix L: Survey Questionnaire Items with Significant Differences in Degree

Item	Full-Time Instructors*	Part-Time Instructors*	Significance	Related categories
A10: I often seek out new information even if I cannot immediately use it.	64.3% Agree	95% Agree	Part-timers show more willingness to seek out new information, but do they use it to make changes?	*Seeking training and knowledge; personality*
A13: Students learn best in pairs or small groups.	71.4% Agree	90% Agree	Both groups show a preference for de-centralized learning techniques, but do they equally use them?	*Class organization techniques; teaching beliefs; effectiveness/efficiency; student-centered beliefs*
A14: It is important for lessons to match real life experiences as much as possible.	78.6% Agree	100% Agree	Part-timers unanimously and full-timers mostly believe in authentic teaching, but is this part of their teaching?	*Authentic language issues; teaching beliefs*
A18: I prefer to use a lot of handouts in class.	42.9% Agree	60% Agree	"Prefer" shows a surprisingly high level of agreement from part-timers – for adaptation or crutch? Since PTs share handouts, this may be simply convenience	*Teaching beliefs; adapting classes and materials; class organization techniques*
A23: I often learn teaching techniques from other teachers.	64.3% Agree	95% Agree	This shows an overwhelming community among part-timers and a majority with full-timers	*Seeking training and knowledge; influence of others*
A24: I usually center my lesson plans on activities rather than lectures.	71.4% Agree	50% Agree	How does this reconcile with part-timers' preference for group work? Is this the practical application or a different interpretation of "activities"?	*Class organization techniques: teaching beliefs; student-centered beliefs*
A26: It is important for me to be able to reuse lesson plans and materials	92.8% Agree	70% Agree	More sharing=less work; full-timers associate repetition with crafting, perfecting and less work	*Benefits of repetition; teaching beliefs; influence of others; teacher community*
A27: The best use of class time for students is interactive practice activities.	86.7% Agree	70% Agree	Same as A24, but with "interactive practice", percentages are higher but similar in relation (and/or again, the difference between thoughts and actions?)	*Teaching beliefs; class organization techniques; student-centered beliefs; effectiveness/efficiency*
A28: Once I have taught a lesson plan, I am unlikely to make significant changes in that plan.	85.7% Disagree	45% Disagree	Full-timers tinker; repetition creates a base to perfect. Part-timers are more reliant on group changes	*Benefits of repetition; adaptations; influence of others; teacher community important*
A29: I like to try new things in my classroom teaching.	78.6% Agree	90% Agree	Part-timers are open to new ideas, but learning new ideas may be adopted more slowly; trying ≠ acceptance	*Personality; attitude toward tech and change*
A30: I work harder now than at my former teaching positions.	57.1% Agree	73.9% Agree	A bit surprising; too many variables here to guess, but both groups are working more now than before	*Turnover; teaching experience; job satisfaction*
B3: I feel a lot of pressure to perform well as a	78.5% Agree	52.6% Agree	This seems evident as full-timers are	*Job satisfaction; turnover;*

teacher in the dept.			evaluated, part-timers are not, but both feel pressure	*teaching experience*
B6: I am happy with the resources available at Park Univ.	64.3% Agree	45% Agree	Part-timers generally use more resources and so have more problems with them. Use = familiarity	*Available resources use; available resources use*
B9: My main goal in teaching at Park Univ. is to build confidence in the students.	91.5% Agree	57.9% Agree	This may be the biggest indicator of lack of self-efficacy in full-timers. Owing to goals confusion?	*Class goals; X and student issues; teaching beliefs*
B12: The choice of textbooks in the dept. is effective and matches the student's needs.	64.3% Disagree	45% Disagree	Full-timers would like to have more control of their teaching; they may feel the curriculum is out of touch	*Teaching beliefs; teaching experience; effectiveness/efficiency*
B17: The directors of the dept are well-informed before making decisions.	50% Undecided; 42.9% Disagree	70% Undecided	Clearly, both groups are unsure how directors make decisions and why – part-timers perhaps more so.	*Leadership and administration issues; effectiveness/efficiency*
B20: It is a good idea for the director of the dept. to change every two years.	78.6% Disagree	40% Disagree	These percentages of both groups roughly match those who have seen these changes and their effects	*Turnover; leadership and administration issues; effectiveness efficiency*
B27: The number of students in my classes hinders my teaching.	85.7% Agree	65% Agree	More teacher-centered teaching is unaffected by larger group sizes, but preparation and marking are still affected. Are part-timers more teacher-centered and/or optimistic?	*Huge classes at X; effective/efficiency; X and student issues*
B33: The Park Univ. site is useful and effective.	78.5% Agree	90% Agree	The site is used by both groups, but part-timers may rely on it more for practical reasons	*Park Univ. site use; effectiveness/efficiency; attitude toward tech and change; tech use in teaching*
B36: I would like to have regular weekly or monthly teacher meetings.	71.4% Disagree	55% Disagree	Both groups do not want meetings. This seems to be both a time and efficiency issue for full-timers	*Seeking training and knowledge; teacher community important; dept*
C1: I feel comfortable using computers.	70.5% Agree	85% Agree	This matches with the higher personal and professional use by part-timers	*Attitude toward tech and change; personality*
C10: Using computers helps me organize and access lesson plans and materials.	78.6% Agree	90% Agree	This represents the practical side of tech use with part-timers. The 21.4% of full-timers seem to be a consistent percentage in other items of non-use/attitude	*Tech works; attitude toward tech and change; effectiveness/efficiency; preparations for class*
C16: My students know more about using computers than I do.	57.1% Agree	70% Agree	Do part-timers know students better or are they more modest or less skilled? Other indicators do not prove the modest hypothesis	*Tech-savvy students; personality; tech training and experience*
C20: Computers are changing the skills that students need to know in order to succeed in life.	100% Agree	65% Agree	Both groups, but full-timers particularly feel students' practical needs are changing, but how does this relate to academic learning needs?	*Student need for tech in future; attitude toward tech and change*

C21: All teachers will one day have to use computers for instructional purposes.	57.1% Agree	75% Agree	This may be the answer to C20. This bears on the crux of the main category. Why change if you don't need to – it's not expected or encouraged and riskier	*Teachers' need for tech in future; attitude toward tech and change; teaching beliefs*
C24: I am more likely to incorporate computers in my teaching when designing a new class.	35.7% Agree 35.7% Undecided	80% Agree	Part-timers as a group are changing their methods to incorporate more tech in their teaching. Here is that 21.4% coming into play again for full-timers	*Attitude toward tech and change; teachers' need for tech in future; tech use in teaching; adapting classes and materials*
C32: Using computers and LCD projectors in the classroom makes students sleepy.	50% Disagree	70% Disagree	Positive belief supports actions; if you use something, then you have reasons and experience to judge its use better. The percentages that are not sure or agree might roughly match attitude questions	*Attitude toward tech and change; tech resistance and issues; tech use in teaching;*
C37: PowerPoint restricts how teachers can teach their lessons.	50% Disagree	70% Disagree	This is consistent with C32 – part timers use PPTs more, so they must not believe they restrict.	*PowerPoint issues; physical classroom considerations; attitude toward tech and change; teaching beliefs*
D5: I hope to be an administrator (e.g., director, manager) one day.	71.4% Disagree	50% Disagree	Full-timers may feel more transient, less ambitious, comfortable as teachers, or a combination of the three	*Personal goals; personality; leadership experience*
D11: Teachers will one day be required to teach classes online.	64.3% Agree	55% Agree	Why is this number higher than C21 for full-timers? Part-timers think teachers won't be online, but using tech in the future	*Teacher need for tech in future; attitude toward tech and change; teaching beliefs*
D12: The skills that English teachers need in order to be successful will not significantly change in the next 20 years.	42.9% Disagree	60% Disagree	Part-timers use more tech in their teaching and yet don't' think it's necessary. This points toward cultural/group motivation to use tech	*Attitude toward tech and change; teacher need for tech in future; Korean education issues; personality*
E1: Overhead projector (OHP) use.	57.1% Never/rarely	75% Never/rarely	More part-timers use computers and projectors or handouts. OHPs are on the outs for education.	*Tech use in teaching; class organization techniques*
E2b: CD player knowledge	92.9% Advanced/expert	73.7% Advanced/expert	Full-timers are more confident and/or more skilled. This once new technology became pervasive	*Tech experience and training; tech use in teaching; attitude toward tech and change*
E3b: CD-ROM and DVD player for in-class use of multimedia knowledge.	85.7% Intermediate/ Advanced/expert	94.7% Intermediate/ Advanced/expert	Part-timers confident in using multimedia players – from more use – roughly 45% don't use it	*Tech training and experience; class organization technique; academic vs. practical teaching*
E6: Spreadsheets (e.g., Excel, manipulating/organizing numbers) knowledge.	71.4% Never/rarely	45% Never/rarely	This supports the practical use of technology by part-timers and points to group/cultural acceptance of using spreadsheet programs – part of background?	*Preparations for class; the need factor; afterschool work; tech training and experience*
E8b: Dept. website materials (downloading, uploading, messaging) knowledge.	71.4% Intermediate/ Advanced/expert	100% Intermediate/ Advanced/expert	All part-timers have used the site and are reasonably confident in its use. Full-timers mostly know as well	*Dept. site use; tech training and experience*

E9: Park Univ. site (English or Korean side) use.	64.3% Often/ Very Often	95% Often/ Very Often	Overwhelming use by part-timers – practical use and cultural acceptance/closer alignment with admin.	*Park Univ. site use; tech use in teaching; class organization technique*
E9b: Park Univ. site (English or Korean side) knowledge.	42.8% Advanced/expert	67.4% Advanced/expert	Confidence shown once again by many part-timers – the percentage again shown for full-timers	*Park Univ. site use; tech training and experience*
E10b: Internet content (e.g., browsing, surfing, searching) knowledge.	64.3% Advanced/expert	84.2% Advanced/expert	Both groups confident in using the Internet from experience – it is pervasive to all but the minority percentages	*Tech training and experience; tech use in teaching; tech resistance and issues*
E11: Email (e.g., sending and receiving electronic messages) use.	85.7% Often/ Very Often	100% Often/ Very Often	Another indicator of practical use by part-timers. Both groups now rely on this form of communication	*Tech use in teaching; student rapport; class organization techniques*
E11b: Email (e.g., sending and receiving electronic messages) knowledge.	71.4% Advanced/expert	83.4% Advanced/expert	Same as E10; part-timers more confident, presumably from more use	*Tech training and experience; tech use in teaching; tech resistance and issues*
E12: Website design (e.g., FrontPage, Dream Weaver, Korean software) use.	92.8% Never/Rarely	75% Never/Rarely	Some part-timers design web pages; more proof that they use more tech in their lives and jobs	*Tech use in teaching*
F9: Lack of time.	50% Sometimes/Often	85% Sometimes/Often	This shows part-timers' desire to use more tech in their teaching. Quite a few full-timers as well	*Time; attitude toward tech and change; tech resistance and issues*
F10: Lack of need.	68.5% Sometimes/often/ very often	50% Sometimes/often/ very often	This backs up the general motivation level of full-timers to be lower than part-timers. The poor wording on this item may make this unreliable	*The need factor; attitude toward tech and change; tech resistance and issues*

*Unless otherwise indicated, "Disagree" includes "Strongly Disagree" and "Agree" includes "Strongly Agree".

Appendix M: Survey Questionnaire Items with Overwhelming Support or Rejection

Item	Full-Time Instructors*	Part-Time Instructors*	Significance	Related categories
A1: I find it stimulating to be original in my thinking and behavior.	100% Agree	90% Agree	Strong numbers related to self-efficacy and autonomy/openness to new ideas	*Personality; Attitude Toward Tech and Change*
A4: I enjoy solving puzzles or complex issues.	85.7% Agree	65% Agree	This often parallels working with tech and troubleshooting	*Personality; Attitude Toward Tech and Change*
A8: Other people often seek my advice when making decisions.	71.4% Agree	85% Agree	Part-timers particularly social; sociability often affects willingness and level of tech use	*Influence of Others; Teacher Community Important; Seeking training and knowledge*
A15: Teachers are more effective when they choose their own materials and syllabuses.	78.6% Agree	75% Agree	Again self-efficacy and autonomy strong – what effects are applied to sociability?	*Effectiveness/Efficiency; Teacher Community Important; Influence of Others*
A17: I never follow a written lesson outline in class.	88.9% Disagree	78.5% Disagree	More experienced teachers use plans less, so the use of "never" may be at play here	*Class Organization Techniques; Teaching Experience*
A20: Vocabulary is the most important aspect of my lessons.	78.5% Disagree	70% Disagree	Strong reaction, although vocabulary emphasis found throughout interviews?	*Vocabulary Focus; Teaching Beliefs; Class Goals*
A22: I don't think student-centered teaching works at Park Univ.	71.4% Disagree	60% Disagree	Full-timers stronger, but both must be speaking from experience	*Student-Centered Beliefs; Teaching Beliefs; Teaching Experience*
A25: It is impossible for students to achieve significant results during one semester of learning.	50% Agree	65% Agree	A large number to believe that learning is ineffective – especially part-timers	*Class Goals; Teaching Beliefs; X and Student Issues; Effectiveness/Efficiency*
B28: The number of desks in the classroom hinders my teaching.	78.6% Agree	70% Agree	The number of students doesn't hinder part-timers as much as # of desks – why not?	*Physical Classroom Considerations; Effective/Efficiency; Teaching Beliefs*
B32: I have used word processing document programs as part of my lectures.	88.6% Agree	80% Agree	A lot of tech use happening in the classroom with word processing documents which are most suitable to reading/writing emphasized classes	*Tech Use in Teaching; Tech Works; Effectiveness/Efficiency*
C3: I am anxious about using computers in the classroom.	57.1% Disagree	65% Disagree	Part-timers more comfortable, but which came first – the chicken or the egg?	*Attitude Toward Tech and Change; Tech Use in Teaching*
C4: I think learning to use computers is easy for me.	64.3% Agree	70% Agree	Both groups comfortable, but again, part-timers just a bit more	*Attitude Toward Tech and Change; Tech Complicated*
C7: I like to use technology in my life (computers, cellular phones, etc.).	78.6% Agree	85% Agree	More proof of part-timers having more personal and professional use of tech	*Tech Personal Use; Attitude Toward Tech and Change*
C11: I am likely to use computers in my lessons in the future.	85.7% Agree	90% Agree	This confirms tech's future, but in what capacity will it be used?	*Teachers' need for Tech in Future; Attitude Toward Tech*

				and Change
C12: I regularly use email to communicate with my students.	85.7% Agree	75% Agree	A bit surprising that full-timers use more email. This effectively extends class/contact time	*Email Communication with Students; Student rapport; Tech works*
C13: Computers significantly aid communication between students and teachers.	78.6% Agree	80% Agree	Hence the widespread use – beliefs match actions. Attitude is varied depending on the technology and its applicability for teachers	*Attitude Toward Tech and Change; Email Communication with Students; Tech Works; Tech Use In Teaching*
C31: I would like to use more computer programs and software, but they seem too difficult to learn.	71.4% Disagree	60% Disagree	Tech is not difficult for full-timers, and part-timers less so. So another motive for not using computers?	*Tech Complicated; Attitude Toward Tech and Change; Teaching Beliefs; Tech Use in Teaching*
C34: When I have a computer problem, I seek help only after first trying to solve it myself.	82.9% Agree	95% Agree	Overwhelming part-time response, but both are learning through experience	*Tech Complicated; Resource Trouble; Tech Training and Experience; The Need Factor*
C36: PowerPoint is often used superficially by students and teachers.	57.2% Disagree	50% Disagree	Full-timers may see this as more of an issue for teachers, but why do so few part-timers disagree?	*PowerPoint Issues; Tech Use in Teaching; Teaching Beliefs; X and Student Issues*
C39: Computers and LCD projectors are an essential part of the classroom resources.	78.6% Agree	80% Agree	Reliance on this technology carries responsibility and dependence (consistency required)	*Attitude Toward Tech; Tech Works; Tech Use in Teaching; Effectiveness/Efficiency*
D1: I am satisfied with my teaching knowledge and qualifications.	71.4% Agree	65% Agree	Self-efficacy and perhaps a product of the quality of teachers at Park Univ.	*Seeking training and knowledge; Personality; Teaching Experience*
D4: Professional development is very important for English teachers in Korea.	71.4% Agree	80% Agree	An example of beliefs outpacing action for full-timers. Time and need are involved here	*Seeking training and knowledge; Personality; Time; The Need Factor*
D8: I feel the methods that I use in my teaching are effective.	92.9% Agree	80% Agree	Self-efficacy very strong in both groups. Interesting to know how CO-centric and UO-centric values affect these numbers	*Teaching Beliefs; Personality; Effectiveness/Efficiency; Teaching Restrictions*
D9: English teaching methods will change a lot in the future.	64.2% Agree	70% Agree	Belief that change will occur is solid, but what measures/necessity translates to teachers and their classroom teaching?	*Seeking training and knowledge; Personality; Teacher Need for Tech in Future*
D10: Changes in education need to be made gradually.	71.4% Agree	85% Agree	Both like slow change, perhaps showing that education is conservative or change fatigue – PTs more so	*Attitude Toward Tech and Change; Korean Education Issues; Personality*
E1b: Overhead projector (OHP) knowledge.	71.5% Intermediate/ Advanced	78.9% Intermediate/ Advanced	Both groups know by now about OHP use – part-timers more so. This technology has survived a long time, owing to practical use?	*Tech Training and Experience; Tech Use in Teaching; Tech Resistance and Issues*
E5: Word processing (e.g., creating, storing,	85.7% Often/	95% Often/	Consistent with B32. This represents	*Tech Use in Teaching;*

retrieving, printing electronic text.) use.	Very often	Very often	the "old wine in new bottles" syndrome. Computers are the new OHP/chalkboards	*Preparations for Class; Tech Works; Effectiveness/Efficiency*
E5b: Word processing (e.g., creating, storing, retrieving, printing electronic text.) knowledge.	71.4% Advanced/ Expert	73.7% Advanced/ Expert	Another example of actions matching ability or vice versa. Notable that the percentages are consistent (though tighter) with the use in E5	*Tech Training and Experience; Preparations for Class; Tech Use in Teaching*
E7: Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols) use	64.3% Never/ Rarely	75% Never/ Rarely	Graphics are not known/used by language teachers. This conflicts with Korean students' preference for multimedia. Teachers need more of this training. Korean education didn't teach this as a general course before, but now they do	*Tech Use in Teaching; Preparations for Class; Tech Training and Experience; Tech Resistance and Issues; Korean Education Issues*
E15: Programming languages use	92.9% Never/ Rarely	89.5% Never/ Rarely	Part-timers have more experience with tech, including programming, though this is still in the minority – however, the curves are consistent	*Tech Use in Teaching; Preparations for Class; Tech Training and Experience; Tech Resistance and Issues*
F8: Lack of training in the use of computers.	57.1% Sometimes/ Often	60% Sometimes/ Often	Both groups feel a need for more training. Details support customized training	*No Formal Computer Training; Tech Training and Experience: Seeking training and knowledge*

**Unless otherwise indicated, "Disagree" includes "Strongly Disagree" and "Agree" includes "Strongly Agree".

Appendix N: Survey Questionnaire Items with General Significance

Item	Full-Time Instructors*	Part-Time Instructors*	Significance	Related categories
A11: I have received computer training from one or more of my workplaces.	50% Agree	50% Agree	A perfect dichotomy; half of the faculty have never had computer training from work	*Tech training and experience*
B13: The dept. would be more efficient with a teacher-coordinator from the dept. in charge.	57.1% Agree	50% Agree	Full-timers with more experience are more confident, but coordinators are a mixed bag	*Leadership and administration issues; effectiveness efficiency; teaching experience*
C14: Students enjoy using computers to learn English.	50% Agree	55% Agree	This could be from lack of experience or lack of belief in computers	*Tech savvy students; attitude toward tech and change*
C18: Using computers generally shortens students' attention spans.	64.3% Undecided	42.1% Disagree 42.1% Agree	Again computers are an unknown quantity given no classroom computers for students	*Attitude toward tech and change; Tech resistance and issues*
E6b: Spreadsheets (e.g., Excel, manipulating/organizing numbers) knowledge.	50% None/ Beginner	50% None/ Beginner 50% Intermediate/ Advanced	This knowledge is self-taught or not formally learned, hence the separation	*Tech training and experience; preparations for class; tech use in teaching*
F1: Not enough computers.	57.2% Never/Rarely	65% Never/Rarely	Computers are unknown quantities; only teacher computers exist in Korean universities	*Resource availability; resource trouble; attitude toward tech; leadership and administration issues*
F3: Outdated/incompatible software.	50% Sometimes/ Often 50% Never/Rarely	45% Sometimes/ Often/Very often	This is an issue with half the faculty at least sometimes leading to inconsistency/lack of dependability	*Resource availability; resource trouble; tech use in teaching; leadership and administration issues*
F4: Lack of maintenance of/technical support for computers.	50% Sometimes/ Often	50% Sometimes/ Often/Very often	Same as F3: inconsistency prevents teachers from committing to use	*Maintenance/tech assistant works; resource availability; resource trouble; leadership and administration issues*
F5: Lack of instructional software.	42.9% Sometimes	50% Sometimes/ Often/Very often	Same as F4 and F3; teachers would use more if the admin provided for/encouraged its use	*Resource availability; resource trouble; leadership and administration issues*
F6: Internet not accessible/inconsistent	50% Sometimes/ Often	40% Sometimes/ Often/Very often	Same as F5, F4 and F3; technology is an unknown/unreliable quantity in teaching	*Resource trouble; resource availability; leadership and administration issues*
F7: Lack of department support on how to use computers.	42.8% Sometimes/ Often	35% Sometimes/ Often	Percentages are less owing to knowledge. Teachers know enough, but need other support	*Leadership and administration issues; tech assistant works*

**Unless otherwise indicated, "Disagree" includes "Strongly Disagree" and "Agree" includes "Strongly Agree".

Appendix O: Overall Survey Questionnaire Results for Full-Time Instructors

Composite View of a Full-time Instructor from the Questionnaire Data (Item correspondence in brackets)

Not well-aligned with the administration and culture

- Thinks Korean education is outdated and poor at teaching English [A16]
- Does not want more policies to coordinate teachers [B14]
- Not sure if the organization is better now; not sure if the dept. is consistent [B19, B21]
- Thinks changing directors every two years is bad [B20]
- Does not think the rehiring process is fair and reasonable [B4]
- Thinks his or her teaching is sometimes hindered by the administration [A19]
- Is not happy with the curriculum; doesn't think the textbook choice matches student needs [B8, B12]
- Is not sure if administrative decisions are political; believes some decisions by the administration are arbitrary or counter-productive; is unsure if the directors are well-informed before making decisions [B18,B16, B17]
- Cannot depend on computers at Park Univ., because they haven't always worked (*Reasons for not working: outdated computers and software/bad maintenance/lack of dept. support/Internet unreliable sometimes/lack of software)* [C26, C27, C33, F2, F3, F4, F5, F6, F7]
- Wants more training (50% have had some), but does not want workshops [F8, B15, A11]
- Does not believe the administration encourages computer use [C40]
- Never uses the dept. site, but knows a little about its use [E8, E8b]
- Uses Park Univ. site, thinks it is useful/effective and has some knowledge about its use [B9, B9b, B33]
- Sometimes uses websites other than official school sites for teaching [B31]

Social but individual, happy with qualifications, but thinks education will change in the future

- Doesn't prefer to work in teams (sometimes learns teaching techniques from others, while others also seek their advice; is not a slow adopter) [A5, A7, A23, A8]
- Likes to be original, but doesn't always like to try new things [A1, A2, A29]
- Likes to solve puzzles [A4]
- Sometimes seeks out information even if it's not immediately useful [A10]
- Thinks professional development is important [D4]
- Does not want to have regular teacher meetings (time is sometimes an issue) [B36, F9]
- Does not attend conferences and does not always stay up to date with new teaching methods [D2, D3]
- Is satisfied with his or her knowledge and qualifications [D1]
- Is satisfied with the salary and benefits at Park Univ. [B1]
- Is not sure about changing careers (is not sure about being a teacher-trainer but does not want to be an administrator) [D6, D7, D5]
- Believes that students' needs are changing and that students sometimes know more than they do about computers [D9, C20, C16]
- Is not sure if teachers' needs are changing, but thinks teachers might have to use computers one day (particularly for online classes) [D12, C21, D11]

Works hard and feels effective despite some hindrances

- Believes changes in education must be made gradually [D10]
- Does not believe teachers' new methods help students, but not sure if they can learn much in one semester [A21, A25]
- Believes his or her methods are effective and likes to choose his or her own materials [D8, A15]
- Likes group and pair work [A13]
- Thinks authentic materials are important [A14]
- Centers lessons on activities and thinks interactive practice is best [A24, A27]
- Believes student-centered teaching can work at Park Univ. [A22]
- Doesn't really like to use a lot of handouts in class [A18]
- Believes reusing materials is crucial [A26]
- Is hindered by too many students and too many desks [B28, B27]

- Believes building confidence in students is his or her main goal in teaching [B9]
- Wants to teach all of his or her classes in the same classroom [B10]
- Works a little harder now than at his or her previous jobs and feels pressure to perform well at Park Univ. [A30, B3]

Unsure about the use of technology for teachers though uses it selectively now

- Is not anxious but comfortable with computers and thinks that they are easy enough to learn [C3, C1, C4, C31]
- Doesn't want to use computers more in his or her teaching because he or she doesn't often see the need [B35, F10]
- Is not sure if technology promotes constructivist learning styles [C5]
- Likes to use computers in his or her life but doesn't use computers to chat with friends or to play games [C7, C8]
- Likes to solve computer problems before asking for help [C34]
- Not sure if he or she will use more technology when designing new class materials, but will use it in the future some time [C24, C11]
- Is not sure if students like to use computers to learn English [C14]
- Is not sure if computers help shy students [C17]
- Thinks computers help to organize lessons [C10]
- Doesn't think teachers who don't use computers are at a disadvantage [C22]
- Doesn't really like to use computers to give writing tutorials [C35]
- Is not sure if PPTs are too businesslike but doesn't believe they make students sleepy or are too restrictive [C38, C32, C37]
- Thinks computers and LCDs are essential to classroom teaching [C39]
- Thinks computers significantly aid communication with students [C13]
- Doesn't really think that students expect teachers to use computers in their teaching [C19]
- Doesn't really think computer use increases their workload [C6]
- Thinks computers do unique things [C9]
- Is not sure if computers shorten students' attention spans [C18]

Doesn't use a lot of resources *in class* but has enough knowledge about their use

- Sometimes follows lesson plans in class [A17]
- Does not like to use the chalkboards [C29]
- Never uses CDs in class, but has a lot of knowledge about their use [E2, E2b]
- Knows enough about the Internet [E10b]
- Regularly uses email with students; knows a lot about its use [E11, C12, E11b]
- Knows nothing about web design or programming [E12, E15]
- Knows about OHPs, but doesn't often use them in class [E1b, E1]
- Uses word processing programs a lot in class and has good knowledge about their use [E5, B32, E5b]
- Rarely uses PPTs in class and has little knowledge about their use [E4, E4b, C36]
- Rarely uses DVDs or CDROM, but has good knowledge about their use [E3, E3b]
- Doesn't use graphics, but has a little knowledge about their use [E7, E7b]
- Doesn't know spreadsheets at all, and does not try to use them [E6b, E6]
- Sometimes provides copies of handouts online [B30]

Appendix P: Overall Results for Part-time Instructors

Composite View of a Part-time Instructor from the Questionnaire Data (Item correspondence in brackets)

Aligned with the administration and culture

- Does not think Korean education is outdated or poor at teaching English [A16]
- Wants more policies to coordinate teachers [B14]
- Thinks organization is good and the dept. is not inconsistent [B19, B21]
- Thinks changing directors every two years is all right [B20]
- Thinks the rehiring process is unclear but okay [B4]
- Does not think her teaching is hindered by the administration [A19]
- Is happy with the curriculum and the textbook choice is reasonable [B8, B12]
- Does not think administrative decisions are political and believes directors may be well-informed—though decisions seem unclear [B18,B16, B17]
- Can depend on computers at Park Univ., but they haven't always worked (*Reasons for not working: viruses/outdated computers and software/bad maintenance/lack of dept. support/Internet unreliable sometimes/lack of software)* [C26, C27, C33, F2, F3, F4, F5, F6, F7]
- Wants more training (50% have had some) [F8, B7, B15, A11]
- Believes administration may encourage computer use [C40]
- Uses the dept. site a lot and knows a lot about its use [E8, E8b]
- Uses Park Univ. site a lot, thinks it is useful/effective, and has some knowledge about its use [B9, B9b, B33]
- Does not often use websites other than official school sites for teaching [B31]

Group oriented, likes to learn and thinks education is changing

- Is group oriented (learns teaching techniques from others and others seek her advice; is a slow adopter) [A5, A7, A23, A8]
- Likes to be original and to try new things [A1, A2, A29]
- Likes to solve puzzles [A4]
- Seeks out information even if it's not immediately useful [A10]
- Thinks professional development is important [D4]
- Does not want to have regular teacher meetings (time is an issue) [B36, F9]
- Attends conferences and stays up to date with new teaching methods [D2, D3]
- Is satisfied with her knowledge and qualifications [D1]
- Is not satisfied with the salary and benefits at Park Univ. [B1]
- Is not likely to change careers (may consider being a teacher-trainer or administrator one day) [D6, D7, D5]
- Thinks students' needs are changing and that students already know more than they do about computers [D9, C20, C16]
- Thinks teachers' needs are changing and thinks that teachers will have to use computers one day (perhaps online too) [D12, C21, D11]

Works hard, uses new methods, and feels mostly effective despite some hindrances

- Believes changes in education must be made gradually [D10]
- Believes teachers' new methods help students a lot, but feels they cannot learn much in one semester [A21, A25]
- Believes her methods are effective and likes to choose her own materials [D8, A15]
- Likes group and pair work [A13]
- Thinks authentic materials are crucial [A14]
- Does not center lessons on activities, but thinks interactive practice is best [A24, A27]
- Thinks student-centered teaching can work at Park Univ. [A22]
- Likes to use a lot of handouts in class [A18]
- Believes reusing materials is important [A26]
- Is hindered by too many desks and too many students [B28, B27]

- Believes building confidence in students is often her main goal [B9]
- Does not want to teach all her classes in the same classroom [B10]
- Works harder now than at her previous jobs; feels some pressure to perform well at Park Univ. [A30, B3]

Despite more work, believes in the use of technology, although not convinced of its value

- Is not anxious and comfortable with computers and thinks that they are easy to learn [C3, C1, C4, C31]
- Wants to use more tech in her teaching, but doesn't have time; however, sometimes doesn't feel the need [B35, F10]
- Thinks technology promotes constructivist learning styles [C5]
- Likes to use computers in her life and uses computers to chat with friends/play games [C7, C8]
- Likes to solve computer problems before asking for help [C34]
- Will use more technology when designing new class materials [C24, C11]
- Thinks students may like to use computers to learn English [C14]
- Thinks computers help shy students [C17]
- Thinks computers help to organize lessons [C10]
- Thinks teachers who don't use computers are at a disadvantage [C22]
- Likes to use computers to give writing tutorials [C35]
- Thinks PPTs are not too businesslike and don't make students sleepy or very restrictive [C38, C32, C37]
- Thinks computers and LCDs are essential to classroom teaching [C39]
- Thinks computers significantly aid communication with students [C13]
- Thinks students may expect teachers to use computers in their teaching [C19]
- Thinks computer use increases her workload [C6]
- Thinks computers do not do unique things [C9]
- Thinks computers may shorten students' attention spans [C18]

Uses a lot of resources to teach, including multimedia and email

- Sometimes follows lesson plans [A17]
- Thinks chalkboards are all right [C29]
- Uses CDs in class and has good knowledge about their use [E2, E2b]
- Knows a lot about the Internet [E10b]
- Regularly uses email with students and knows a lot about its use [E11, C12, E11b]
- Knows a little about web design, but knows nothing about programming [E12, E15]
- Knows about OHPs, but doesn't use them in class [E1b, E1]
- Uses word processing programs a lot in class and has good knowledge about their use [E5, B32, E5b]
- Uses PPTs in class and has good knowledge about their use [E4, E4b, C36]
- Sometimes uses DVDs or CDROM and has good knowledge about their use [E3, E3b]
- Doesn't use graphics and doesn't have knowledge about their use [E7, E7b]
- Doesn't know spreadsheets well, but does try to use them [E6b, E6]
- Sometimes provides copies of handouts online [B30]

Appendix Q: Classroom Observation Email

Letter of Request to Participate in the In-Depth Study **June 1, 2007**

Dear teacher:

This letter is kindly to request your permission to participate in the in-depth part (which will include interviews and observations) of a research project being undertaken in the General English Department of Park University on teachers' perceptions and uses of technology in the classroom. During the interviews you will be given the opportunity to clarify any information that you provide in order to present an accurate account of your beliefs and opinions. Classroom observations will include one to three classroom visits during one semester by the researcher alone. These observations will be unobtrusive and non-participative (the researcher will observe from the back of the classroom). Video-taping will be used only to verify observations and will be used exclusively for the purposes of this study. All information on the observations, including video files, will be made available to the individual teacher during a post-observation interview. Lesson-planning observations will take place twice during the semester during office hours. These observations will be interactive, with the researcher asking for clarification of any procedures which are unclear. Video-taping will, once again, be used only to verify observations and made available to the individual teacher during a post-observation interview.

The intent of these observations is not to judge your teaching in any way, but to understand how classroom resources and technology affect your lesson and lesson planning.

Results of the study will be written up using a pseudonym in order to maintain your anonymity, and will in no way affect your position or standing at Park University.

If you have any questions at any time during the research, including background, methods, or time tables, please do not hesitate to contact me by email: thomaswebster@park.ac.kr*, or during my office hours in room 104 in the Education building. Upon completion of the study, results will be made available through the Department office, or by request at the above email.

In the event that you have any complaint or concern about the way you have been treated during this study, or if you have any query that the researcher or supervisor has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee c/- Office of Research and Higher Degrees, Second Floor, B Block, The University of Southern Queensland, Toowoomba 4350, Queensland, Australia. Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

Thank you for taking part in the study,
Best Regards,

Thomas E. Webster
PhD Candidate
University of Southern Queensland

*Email address includes pseudonym

Appendix R: Comparison of Applicable Survey Questionnaire Items with Classroom Observation Data

Item	Response	Matches interview data? (Credibility)	Related quotation from semi-structured interview	Matches observation data? (Credibility)	Related note or evidence from observation	Insights/Questions raised
A13: Students work best in pairs or small groups.	Agree	Yes	*"...so they are in groups and so I will make one copy for each group in case somebody didn't print it out so they can at least share and look"*	*Yes*	*"4:00:....T calls on group 6 again…"*	*In this instance, groups are used as an organizational tool and a backup for requiring students to print off handouts*
A14: It is important for lessons to match real life experiences as much as possible.	Strongly agree	Yes	*"Like, for example, I think language input should be as authentic as possible"*	*Unsure*	*"4:43: T recalls "flat rejection" for example of Q2. Ss laugh…"*	*Providing real examples of vocabulary usage is more authentic than merely relying on the text*
A17: I never follow a written lesson outline in class.	Disagree	Not sure	*"Now, because we're actually using a textbook I have very little notes-it's like now let's do this exercise and then activity and then the activity, it will be something that I will type on the computer if I had a handout or something like that"*	*Yes*	*"5:31: S asks question. T walks/stoops to look at book answer and notebook plan…"*	*With more experience, fewer notes are used depending on personality – some use mere outlines using one or two words, while others use no notes whatsoever*
A18: I prefer to use many handouts in class.	Agree	Yes	*"Usually they just print things out. ...I don't like to write any more on the chalk…on the board anymore"*	*Yes*	*"3:35: …T takes book to desk—asks Ss to look at supplementary review paper…"*	*Handout, chalkboard, OHP, computer, and website use are tightly related with the dimensions of preparation and on the fly customization affecting perceptions of efficiency*
A20: Vocabulary is the most	Written	Exactly	*"I took some of like the*	*Yes*	*"4:01:…T talks about*	*Clearly, collocations*

important aspect of my lessons.	answer in margin talks about collocation use.		*single item vocabulary lists and made, like, collocations exercises with them"*		*collocations…"*	*relates to practical beliefs about language learning – probably owing to learning experiences*
A22: I don't think student-centered teaching works at Park Univ.	Disagree	Yes	*"I don't really do a lot of lecture-based teaching. That's not really the kind of teaching I do, but um…"*	*Yes*	*"9:39: T: Begin! T goes to first group to check (kneels down)…"*	*Student-centered learning is a catchphrase, but ESL teachers know its value. How do teachers balance student expectations with theory?*
A24: I usually center my lesson plans on activities rather than lectures.	Disagree	Not sure	*"And also I know if we just stay in the book then eventually the students get bored and it doesn't go into the brain anymore"*	*Yes*	*"5:08: T shows story in book – gives overview of reading…"*	*This teacher said that she/he varies her or his methods and techniques based on need*
A27: The best use of class time for students is interactive practice.	Agree	Not sure	*"So, I kind of go through the reading very thoroughly, I think"*	*Unsure*	*"3:44: T: Do you want to know the answers? Ss: Yes! T hands out sheets. T reads…"*	*How is the teacher interpreting "interactive"? Is chalk n' talk interactive?*
A29: I like to try new things in my classroom teaching.	Agree	Not sure	*"Yeah, so…probably I would say books and maybe making handouts for students for example"*	*Unsure*	*"12:34: T asks Ss for any questions (p. 26) T center w/book in hand…"*	*Desire does not seem to be represented in the two lessons observed. But then again, "new things" are relative to the teacher*
B24: Park Univ. students are independent and can work on their own.	Disagree	Yes	*"When they ask me questions they expect an answer and I don't give them the answers right away and it's really frustrating to them"*	*Unsure*	*Evidence was not found in the observation data*	*This relates to class goals and use of authentic materials – are teachers teaching only English or western-style thinking skills as well? Language teaching must consider culture and mindsets*

B26: My English one and English two students are highly motivated to study in my class.	Undecided	Yes	*"I think there's a few here and there who, who… aren't that interested in the class, but keep in mind that it's a required class, and you know, foreign language is not everyone's cup of tea…"*	*Unsure*	*"4:11: T walks around checking S work. Ss get quieter. S returns late from bathroom. T no comment…"*	*Another example of the variance of students, classes, and lessons. Teachers take for granted this shortcoming, but how does it affect their feelings of self-efficacy?*
B27: The number of students in my classes hinders my teaching.	Strongly agree	Exactly	*"I don't know if I see an improvement right away because yet we only three writing assignments and we just have too many students so we can't really focus on individual students"*	*Unsure*	*"12:40: T shows problem sentence. T: turn the page. T: Do this at home…questions on Friday"*	*Another aspect of self-efficacy – teachers want to customize lessons, but are pulled toward lecturing owing to large class numbers*
B28: The number of desks in the classrooms hinders my teaching.	Agree	Yes	*"But, and the same kind of desks in the....I don't like them; too many desks in the classroom, so you can't move around very well"*	*Yes*	*"4:01: …T walks around checking (stretches to walk around desks)…"*	*Classrooms physically punish interactive teachers – it's almost as if the facilities are telling the teacher to lecture*
B30: I provide students with copies of all my classroom handouts on a website (such as the Park Univ. site or other).	Strongly agree	Exactly	*"I put them up on the cyber campus; they have to download them, print them out, and bring them to class-and so they have things with them always"*	*Yes*	*"12:32: T: Do you have the print outs? (Some had trouble printing out)"*	*The teacher gives responsibility to students, but will be burned sometimes – what effect does this have on teacher image/progress?*
B31: Other than the mandatory listening component in some classes, I usually require my students to visit a website as part of the requirements in my class.	Agree	Yes	*"But um, they do realize, those two classes realize that, you know, if they participate on that board, then, you know, it counts toward their participation"*	*Unsure*	*Evidence was not found in the observation data*	*Teacher likes to use supplementary sites, but is this to extend contact hours or a means of organization and convenience of grading?*
B32: I have used word processing document computer programs as part of	Strongly agree	Exactly	*"…what I've taken to doing also in the past few weeks, is just using Microsoft*	*Yes*	*"3:45: T changes to word processing program. Switches back*	*Using word processing as an electronic chalkboard*

my lectures.			*Word in lieu of the physical chalkboard"*		*to PPT then to black…"*	*is viewed differently by teachers and administration who say it is using it "superficially"*
B33: The Park Univ. site is useful and effective.	Strongly agree	Not sure	*"I mean, the only reason that I'm using the Park Univ. site now is because of the copying situation!"*	*Yes*	*"1:45: T: We are going to start here with this…check Park Univ. site before class, there will be a vocabulary assignment"*	*Clearly the site is useful, but does the teacher merely view it as a problem-solver?*
B34: Owing to the recent monitoring of the copy machine, I cannot make as many copies as I would like.	Strongly disagree	Not sure	*"The main reason that I'm doing this is because of the copy problem that we had and also because I was spending so much time copying things for my hundred plus students"*	*Unsure*	*Evidence was not found in the observation data*	
C1: I feel comfortable using computers.	Undecided	Yes	*"Um…PowerPoint…I, I would like to get gradually more and more sophisticated, well, I was (garbled)*	*Unsure*	*"4:15: …T shows answers on PPT (white)…T pauses…T shows answers with line # of one pair…"*	
C2: I think that using computers improves the quality of teaching.	Undecided	Not sure	*"Yeah, yeah; but I think, you know, that there are other interactive programs that are really great…"*	*Unsure*	*Evidence was not found in the observation data*	
C3: I am anxious about using computers in the classroom.	Strongly disagree	Not sure	*"For me, yeah; I don't know about the students, but for me, I have to pay attention more. If everyone is going to pay attention to me then I don't want to lose that…"*	*Unsure*	*Evidence was not found in the observation data*	
C5: Using computers promotes constructivist learning styles.	Undecided	Not sure	*"I should next time, next time I run that class in particular, I need to have an online community going at the same time, so…"*	*Unsure*	*Evidence was not found in the observation data*	
C12: I regularly use email to	Strongly	Exactly	*"I usually use Yahoo, but I*	*Unsure*	*Evidence was not found*	

communicate with my students.	agree		*know that sometimes when students are using Hanmail, then it doesn't get through"*		*in the observation data*
C13: Computers significantly aid communication between students and teachers.	Undecided	Not sure	*"But I always grab a section of some that I think- I don't know if they read them-but this is also teaching and this is also dialog between teacher and student and I want them to see the sort of working-through language, and it's printed"*	*Unsure*	*Evidence was not found in the observation data*
C15: Computer use has a negative impact on student interaction.	Disagree	Not sure	*"I think it was the fact that they had to use English on a space where everyone would view it"*	*Unsure*	*Evidence was not found in the observation data*
C19: My students expect me to use computers for instruction.	Disagree	Not sure	*"Anyway I think students' minds are closely related to IT technology, so their minds are like that"*	*Unsure*	*Evidence was not found in the observation data*
C22: Teachers who do not use computers as part of their lessons are at a disadvantage.	Agree	Yes	*"That, yeah, and like the cyber class too, I think for us, it reflects well if you're using that"*	*Unsure*	*Evidence was not found in the observation data*
C25: I am more likely to use pre-made computer materials and lessons in my teaching rather than develop my own materials.	Undecided	Not sure	*"And I said, you know, why re-invent stuff? That's one reason we picked Northstar, is their website is great-if people actually take the time to go to it. They have handouts; yeah, they have handouts"*	*Unsure*	*Evidence was not found in the observation data*
C26: I can depend on the computers and other resources in the classroom.	Disagree	*Yes*	*"...like they have lots of material in the class but it's not taken care of. Both in terms of the teachers are not being taken care of as how to use the material, but also like maintaining the*	*Unsure*	*Evidence was not found in the observation data*

			computers"		
C27: The computers and other resources in the classrooms at Park Univ. have always worked when I needed to use them.	Agree	No	*"Um…but that said, if I want to play sound in some of those rooms, like I in room 260, their speaker system doesn't work for some reason"*	*Unsure*	*Evidence was not found in the observation data*
C28: Using computers restricts my movement in the classroom.	Agree	Yes	*"So, the only thing I don't like about it is that I'm kind of, like, bound to the desk as it were…That's the only drawback"*	*Unsure*	*"2:15: T starts word processing program. T stands at podium then walks around checking sign-up sheet…"*
C29: I like using the chalkboards in the classroom.	Strongly disagree	Yes	*"One reason is um…ah, if I don't use it, the only alternative is to use the chalk board…and I, I just kind of have an issue with using chalk in the 21st century"*	*Yes*	*Participant did not use chalkboard during either lesson*
C32: Using computers and LCD projectors in the classroom makes students sleepy.	Agree	Yes	*"I like being able to do it right there, that they could see it being done. Like I said, toward the end, they were getting [sleepy]"*	*Unsure*	*Evidence was not found in the observation data*
C33: Viruses and other unnecessary software hinder my use of the classroom computers.	Strongly agree	Yes	*"I think most of them did not use the computer at all-so I was basically the only one-except for the students who were playing on the computer and sometimes getting some viruses and stuff-so I did have some problems with the computers"*	*Unsure*	*Evidence was not found in the observation data*
C34: When I have a computer problem, I seek help only after first trying to solve it myself.	Strongly agree	Yes	*"So like the first half of my class, I had a hard time getting my software running. So, that was really annoying. And then I mentioned it and then it was*	*Yes*	*"5:14: Click sound heard…T continues to work on problem, Ss chatting…"*

			fixed-well I guess they just formatted, reinstalled everything"		
C35: I like to use computers to give writing tutorial in class.	Disagree	Not sure	*"For example, the PowerPoint stuff that I've been doing is for writing…ah, to give them instructions about like the process of writing, the steps of writing an essay"*	*Unsure*	*Evidence was not found in the observation data*
C39: Computers and LCD projectors are an essential part of the classroom resources.	Strongly agree	Yes	*"Just like when we enter our grades, and they give us the printouts so we know how to do it; they could give us something similar. How to use the LCD and how to use the computer in class and lease for those of us who are not familiar"*	*Yes*	*Participant used these resources throughout both lessons*
E1: Overhead projector use (OHP) use.	Very often	Not sure	*"Ah, OHP-I've used that before when I didn't have a computer, but I definitely prefer the computer"*	*Unsure*	*Evidence was not found in the observation data*
E2: CD player use.	Rarely	Yes	*"Yeah; listening and writing usually where they have to download things"*	*Unsure*	*"3;36: T plugs in CD player, Ss quiet down. T checks roster by counting…"*
E3: CD-ROM and DVD player for in-class use of multimedia.	Rarely	Not sure	*"I bring, like, videos or a DVD and it takes a little time to search for that…"*	*Unsure*	*Evidence was not found in the observation data*
E4: Presentation software (e.g., PowerPoint) use.	Often	Yes	*"But then, that's where the PowerPoint thing is nice 'cause I'm not bound behind the desk. I just have to click it-click the mouse to go to the next slide, and so I'm standing up all the time…"*	*Yes*	*"3:45: T changes to word processing program. Switches back to PPT, then to black…"*
E5: Word processing (e.g., creating storing, retrieving,	Sometimes	Yes	*"…but now I really hate using the chalkboards. And*	*Yes*	*"9:37: T displays game rules on screen. T: Look*

printing electronic text) use.			*I find it so much more convenient to type stuff onto a white word processing document or have stuff that's, you know, been prepared already"*		*at handouts…Teams divided into 3 parts…"*
E7: Graphics (e.g., storing/manipulating pictures, diagrams, graphs, or symbols) use.	Often	Yes	*"So, on the one hand it's a great resource, because it if I need Georgia O'Keeffe pictures to show-boom, I can get them really fast"*	*Unsure*	*Evidence was not found in the observation data*
E9: Park Univ. site use (English or Korean side).	Very often	Exactly	*"I tell them data every Monday -I say that after 3:00 PM on Monday there will be stuff on the Park Univ. site, you have to check them, and if you don't have it, print them out and bring them to class"*	*Yes*	*"1:45: T: We are going to start here with this…check Park Univ. site before class, there will be a vocabulary assignment"*
E10: Internet content (e.g., browsing, surfing, searching).	Very often	Yes	*"…well that's also because I'm downloading stuff from the Internet"*	*Unsure*	*Evidence was not found in the observation data*
F4: Lack of maintenance of/technical support for computers.	Sometimes	Yes	*"I was thinking of sort of a simile to explain this: it's like you have a car and you just leave the keys in the ignition and everybody in the family can use it. But nobody bothers to change the oil or to fill up the gas tank unless it's empty, they have to put some"*	*Unsure*	*Evidence was not found in the observation data*
F6: Internet not accessible/inconsistent.	Sometimes	Yes	*"The Internet System is not stable here…and even in our media lab, somebody in the computer lab has figured out what our ISBN numbers are and they steal them"*	*Unsure*	*Evidence was not found in the observation data*